



2022 Summary Report

COLBORNE DRINKING WATER SYSTEM

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Definitions

“2022 reporting period” refers to January 1st, 2022 to December 31st, 2022.

“ACWS” refers to Aquatech Canadian Water Services who is the operating authority for the Township of Cramahe.

“Colborne DWS” refers to the Colborne Drinking Water System.

“DWWP” refers to the Drinking Water Works Permit issued to the Township of Cramahe (owner of the Colborne DWS) under Part V of the *Safe Drinking Water Act, 2002*.

“DWQMS” refers to the Drinking Water Quality Management System.

“Large municipal residential system” is a municipal drinking water system that serves a major residential development and serves more than 100 private residents.

“MDWL” refers to the Municipal Water License given to ACWS to operate the Colborne DWS.

“MECP” refers to the Ministry of Environment, Conservation and Parks.

“O.Reg 170/03” refers to Ontario Regulation 170-03 made under the *Safe Drinking Water Act 2002* for Drinking Water Systems.

“Owner” Municipal drinking water system is often the municipality as a corporation entity. Members of municipal councils and municipal officials who provide oversight to this corporate entity also provide oversight or exercise decision making authority in respect of the drinking water system it owns. They are responsible for having policies, management tools and processes in place so that the municipality meets all its legislative and regulatory requirements under the SDWA.

“Operator or Operating Authority” Municipal drinking water system is the person or entity that is given responsibility by the owner for the day to day operations of the drinking water system, its management, maintenance or alteration. A municipality may take on the operational role through its own staff or it may choose to contract it out to a third party.

“PTTW” refers to the permit to take water given by the *Ontario Water Resources Act, R.S.O. 1990* (OWRA) to the Township of Cramahe (owner of the Colborne DWS).

“SDWA” refers to the Safe Drinking Water Act, 2022.

“WTP” refers to Water Treatment Plant.

1.0 Purpose

The purpose of the Annual Summary Report is to provide information to residents and stakeholders of the Village of Colborne, as well as satisfying the regulatory requirements of the *Safe Drinking Water Act, 2002* including the *Drinking Water Quality Management Standard* reports to the owner, and regulatory reporting required under *Ontario Regulation 170/03*.

Scope

This annual summary report includes information pertaining to the Colborne DWS for the reporting period of January 1, 2022 to December 31, 2022. O.Reg 170/03 requires reported information be provided to:

- **Drinking Water System Owners (Mayor and Council)**
- **Owner and Operating Authority Top Management**
- **The Public**

2.0 Colborne Drinking Water System Overview

The Colborne DWS consists of two groundwater wells (Well 1A and Well 2), two pump houses with one water treatment facility (Class 3), one storage reservoir, and approximately 27 km of distribution mains. The water usage at the Colborne DWS is considered a large municipal residential system used for domestic purpose and rated to maximum daily flow of 3,283 m³.

The Colborne Water Treatment Plant (Colborne WTP) is located at 321 Purdy Road, Colborne, ON. The water supply for the Colborne is obtained from Well 1A and Well 2 on a rotating cycle. Sodium hypochlorite is injected for primary disinfection and sodium silicate is added to sequester iron in the system. Primary disinfection is achieved then through the 215m serpentine chlorine contact pipe (buried east of the WTP).

The distribution system consists of two pressure zones regulated by two pressure reducing valves that maintain pressure ranging 20-90 PSI, the 2,342 m³ water storage tank (located north of Hwy 401), 27 km of watermains and 140 fire hydrants. After meeting the required contact time for primary disinfection, the treated water reaches the distribution system and the water storage tank. Water is then conveyed to each dwelling by the watermains. As of December 31, 2022, there was a total of 1088 metered residents.

3.0 Legislated Requirements

In compliance with schedule 22 of O.Reg 107/03, this report must be submitted no later than March 31st, 2023 to municipal council of the Township of Cramahe. The contents must list the requirements of the *Safe Drinking Water Act, 2022*, the regulations, the system's approval, drinking water permit, municipal drinking water license and any orders that the system failed to meet at any time during the reporting period. Specifying the duration of the failure and the correct measures taken to correct the failure.

3.1 Acts and Regulations

Ontario regulated systems must meet the requirements of the *Safe Drinking Water Act, 2002* and its regulations. Most notably, the *Drinking Water Systems Regulation* which sets out the treatment and testing requirements for all categories of regulated water systems.

The purpose of the SDWA, 2002 is to gather in one place all legislation and regulations relating to the treatment and distribution of drinking water. The SDWA, 2002 expands on existing policy and practice and introduces new features to protect drinking water in Ontario.

3.2 Safe Drinking Water Act, 2002

The SDWA and its associated regulations specify the requirements for the drinking water systems, testing services, and certification of system operators. It also sets out quality standards and mechanisms for compliance and enforcement.

The two sections of the SDWA that are important for Municipal Councilors and Top Managers/Directors are *Section 11: Duties of Owners and Operating Authorities* and *Section 19: Statutory Standard of Care, Municipal Drinking Water Systems*.

Section 11: Duties of Owners and Operating Authorities

This section describes the legal responsibilities of the owners and operating authorities of regulated drinking water systems.

Owners and operating authorities are responsible for ensuring their drinking water system:

1. Provide water that meets all the prescribed drinking water quality standards.
2. Operate in accordance with the Act, regulations and are kept in a fit state of repair.
3. Operated by persons having training or expertise for the operating functions.
4. Personnel are under the supervision of a qualified person.
5. Comply with all the sampling, testing, and monitoring requirements.
6. Comply with reporting requirements.

Section 19: Statutory Standard of Care

This section requires that anyone in a position overseeing a municipal water system is to apply a standard of care to their activities. This section extends the legal responsibilities to those who are in the position to oversee the municipal drinking water system. Specifically, the people with decision making authority. This section requires them to exercise the level of care, diligence, and skill in respect of the municipal drinking water system. Also to act honestly, competently and with integrity, with the view of protection and safety of users of the municipal drinking water system.

4.0 2022 Compliance

4.1 Colborne Water Treatment Plant

The Colborne DWS maintained compliance with all applicable legislation, and all terms and conditions of the Municipal Drinking Water License, Drinking Water Works Permit and Permit to Take Water in 2022.

Flow measurement equipment required by ACWS to record the volume of water taken from the wells, and the volume discharged to the distribution system are calibrated on an annual basis. Other instruments, such as the portable chlorine and turbidity analyzer are calibrated in-house on a predetermined schedule based on the manufacturer's recommendations.

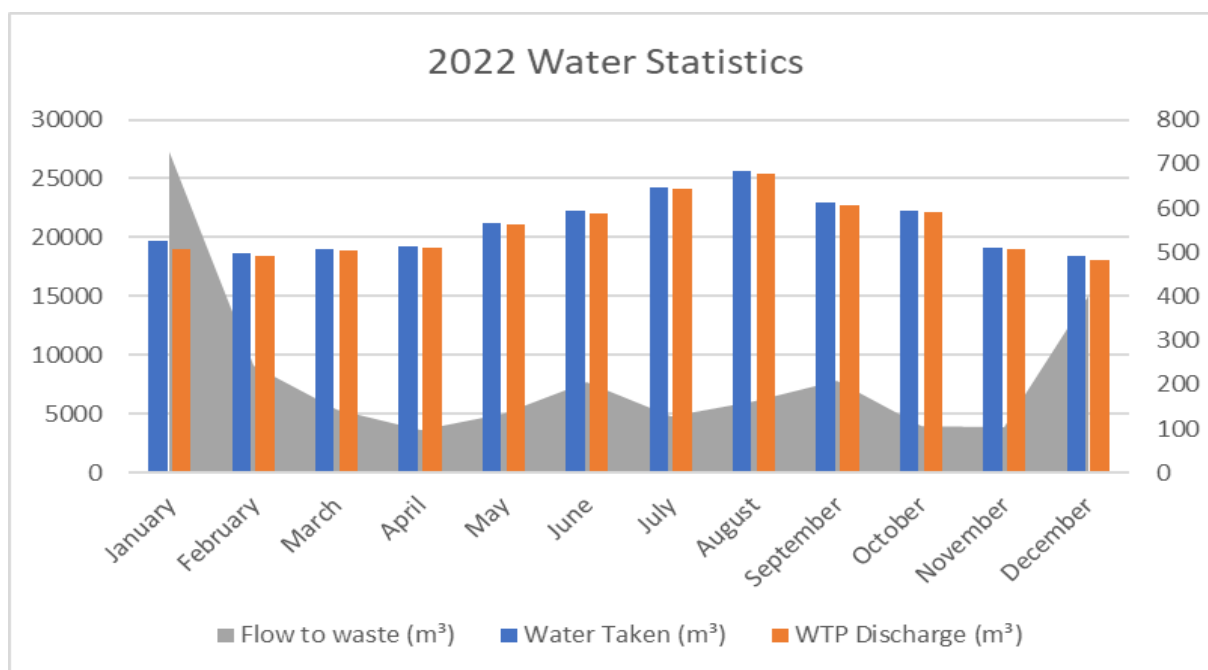
4.2 Colborne Distribution System

Best management practices were employed in the distribution system to ensure quality drinking water was provided to consumers. This included, but not limited to the following activities:

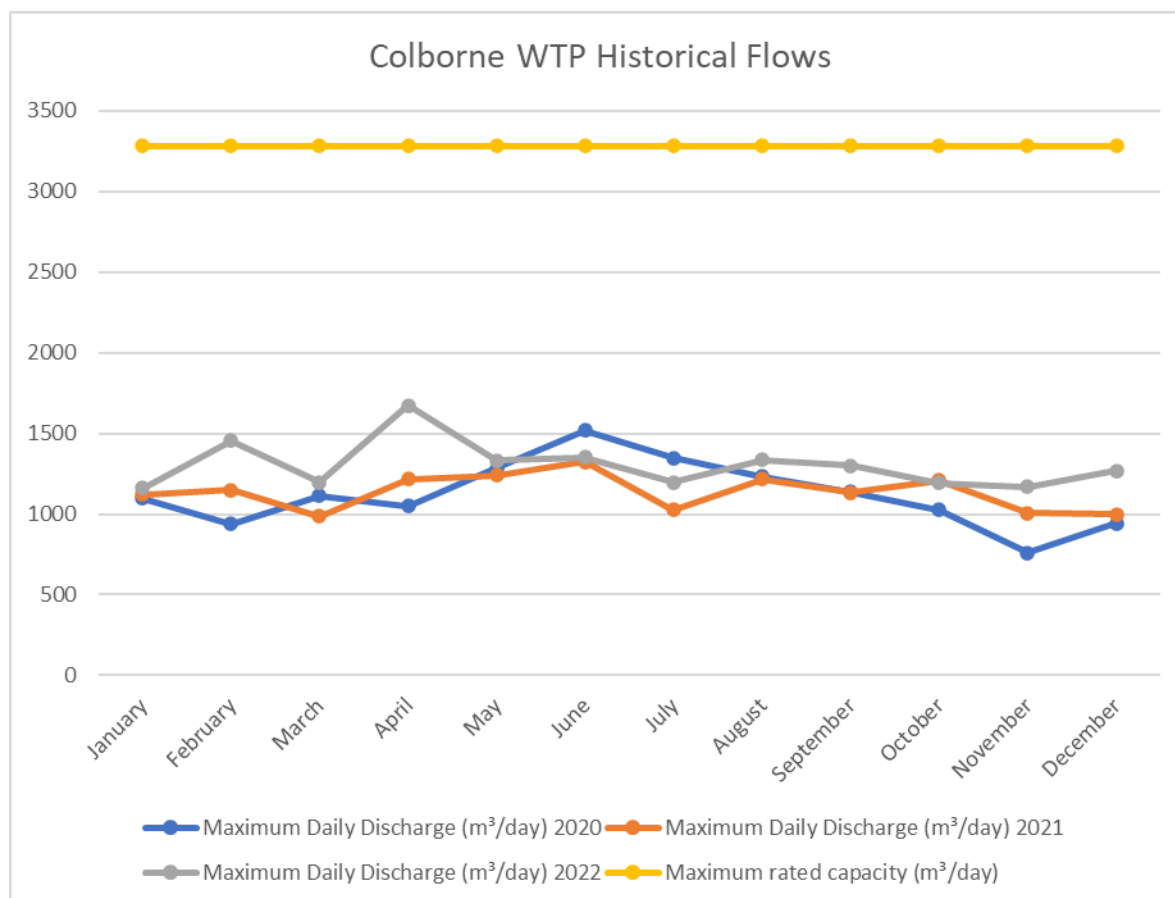
- Annual Hydrant Flushing
- Watermain Break Repair – 1 repair

4.3 PTTW Compliance

The Colborne DWS was issued the current PTTW December 20, 2019, No. 8612-BNENBH, and is valid until April 6, 2030. The permit allows ACWS to take 3,283 m³ of water each well per day at a rate of 2,280 L/min. The 2022 Water Statics graph below outlines the total monthly volumes taken from the wells. In 2022 there were no incidents exceeding the maximum allowable volume of water permitted to take.



Historical flow rates at the Colborne WTP, illustrated below, indicate that the WTP has operated at 36% average of its rated capacity over the past 3 years.



4.4 Sampling and Analysis

The Colborne DWS exhibited compliance with all sampling and testing as required by O.Reg 170/03 in the 2022 reporting period. Testing was conducted by third party laboratories. Eurofins from January 1, 2022, to January 20, 2022, February 21, 2022, to December 6, 2022. SGS Canada Inc from January 21, 2022, to February 14, 2022. Bureau Veritas December 13, 2022, to present. All microbiological sampling and testing conducted at the Colborne WTP and the Colborne distribution system; zero notifications submitted as a result of a parameter exceeding its respective maximum acceptable concentration.

In addition to the microbiological sampling and testing requirements, sampling and testing is required for chemical, inorganic and organic parameters. All parameters tested for are below the maximum acceptable concentration (MAC), with a majority being below the method detection limit (MDL). A parameter below the method detection limit is indicated by (<) or ND (Not Detected), cannot be detected as the concentration is lower than minimum concentration that can be measured and reported with 99% certainty.

Note: The MDL is always higher than the standard of a given parameter.

4.5 MECP Inspection

A compliance inspection audit was conducted May 4, 2022. See *Appendix E* for the complete inspection report.

5.0 Drinking Water Quality Management System

This section provides an update on the Drinking Water Quality Management System (DWQMS).


License and Permit

The Municipal Drinking Water License (MDWL), Drinking Water Works Permit (DWWP), and Permit to Take Water (PTTW) are valid until November 4, 2026.

Accreditation 3rd Party – desktop audit

A systems audit was conducted February 3, 2022, by SAI Global auditor. The objective of this audit is to determine whether the Quality Management System (QMS) is conforming with the MECP DWQMS. No non-conformances were found. See *Appendix H* for the complete report.

The results of this System audit (Stage 1) audit indicate that the organization is ready for an onsite accreditation (Stage 2) audit.



APPENDIX A

Drinking Water Works Permit 138-201



DRINKING WATER WORKS PERMIT

Permit Number: 138-201

Issue Number: 3

Pursuant to the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32, and the regulations made thereunder and subject to the limitations thereof, I hereby issue this drinking water works permit under Part V of the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32 to:

The Corporation of the Township of Cramahe

**1 Toronto St., P.O. Box 357
Colborne ON
K0K 1S0**

For the following municipal residential drinking water system:

Colborne Drinking Water System

This drinking water works permit includes the following:

Schedule	Description
Schedule A	Drinking Water System Description
Schedule B	General
Schedule C	All documents issued as Schedule C to this drinking water works permit which authorize alterations to the drinking water system
Schedule D	Process Flow Diagrams

Upon the effective date of this drinking water works permit #138-201, all previously issued versions of permit #138-201 are revoked and replaced by this permit.

DATED at TORONTO this 5th day of November, 2021

Signature

Aziz Ahmed, P.Eng.
Director
Part V, *Safe Drinking Water Act*, 2002

Schedule A: Drinking Water System Description

System Owner	The Corporation of the Township of Cramahe
Permit Number	138-201
Drinking Water System Name	Colborne Drinking Water System
Permit Effective Date	November 5, 2021

1.0 System Description

- 1.1 The following is a summary description of the works comprising the above drinking water system:

Overview

The **Colborne Drinking Water System** consists of two (2) wells (production and standby), two (2) pumphouses with one (1) treatment facility, one (1) storage reservoirs and approximately 27 kilometers of distribution watermains.

Ground Water Supply

Well No. 1 (standby well)

Description	150 mm dia., 71.3 m deep drilled well
Location	NAD 83: UTM Zone 18, 268564.00 m E., 4878563.00 m N.
Well Pump	Submersible well pump rated at 13.2 L/s at a TDH of 83.3 m
Notes	Located within Well Pumphouse No. 1 Building

Well No. 2 (production well)

Description	250 mm dia., 72.5 m deep drilled well
Location	NAD 83: UTM Zone 18, 268550.00 m E., 4878536.00 m N.
Well Pump	Vertical Turbine well pump with variable frequency drive rated at 38.0 L/s at a TDH of 91.5 m
Notes	Located within Well Pumphouse No. 2 Building

Well Pumphouse No.1

Street Address	321 Purdy Road
UTM Coordinates	NAD 83: UTM Zone 18, 268564.00 m E., 4878563.00 m N.
System Type	Groundwater with disinfection
Notes	Building is approximately 6.0 m X 6.7 m and houses iron sequestering and disinfection facilities

Well Pumphouse No.2

Street Address	321 Purdy Road
UTM Coordinates	NAD 83: UTM Zone 18, 268550.00 m E., 4878536.00 m N.
System Type	Groundwater
Notes	Building is approximately 4.6 m X 3.0 m

Chemical Addition**Sodium Hypochlorite**

Description	A primary disinfection system
Equipment	Well Pumphouse No 1. – two (2) (duty and standby) metering pumps and two (2) chemical solution tanks
Feed Points	Well No. 1 & No 2 pump common discharge header
Notes	Continuous chlorine analyzer sampling from sample line at end of chlorine contact pipe

Sodium Silicate

Description	An iron sequestering system
Equipment	Well Pumphouse No 1. – two (2) (duty and standby) metering pumps and one (1) chemical solution tank
Feed Points	Well No. 1 & No. 2 well pump common discharge header
Notes	

Chlorine Contact**Chlorine Contact Pipe**

Description	Oversized pipe located east of Well Pumphouse No. 1
Dimensions	215 m long 450 mm diameter pipe
Notes	Contact pipe positioned underground between the 200 mm diameter well pump common discharge header and the 250 mm diameter drinking water feedermain

Instrumentation and Control**SCADA System**

Description	The SCADA system controls the monitoring, recording and alarms. The system monitors the chlorine residual, flow rates, pressure, and turbidity. There are alarms for low and high chlorine residual.
Notes	

Emergency Power

Backup Power Supply

Description	One (1) 100 kW diesel engine standby power generator
Notes	Located at 321 Purdy Road

Fuel Oil Systems

Fuel Storage Locations

Location	UTM Zone 18, 26855.27 m E, 4878542.63 m N
Description	Aboveground, diesel generator base integral contained tank with a capacity of 814L
Fuel Type	Diesel
Source Protection Area	Lower Trent Source Protection Area
Notes	

Storage Reservoir

Colborne Treated Water Storage Tank

Location	220 Herley Road, Colborne
UTM Coordinates	NAD 83: UTM Zone 18, 265250.00 m E., 4878750.00 m N.
Description	Standpipe with total storage volume of 2,342 m ³ and useable volume of 2,282 m ³
Dimensions	16.0 m diameter and 11.7 m height
Notes	

Watermains

1.1 Watermains within the distribution system comprise:

1.1.1 Watermains that have been set out in each document or file identified in column 1 of Table 1.

Table 1: Watermains	
Column 1 Document or File Name	Column 2 Date
2020 - Colborne Distribution Map	August 12, 2020

- 1.1.2 Watermains that have been added, modified, replaced or extended further to the provisions of Schedule C of this drinking water works permit on or after the date identified in column 2 of Table 1 for each document or file identified in column 1.
- 1.1.3 Watermains that have been added, modified, replaced or extended further to an authorization by the Director on or after the date identified in column 2 of Table 1 for each document or file identified in column 1.

Schedule B: General

System Owner	The Corporation of the Township of Cramahe
Permit Number	138-201
Drinking Water System Name	Colborne Drinking Water System
Permit Effective Date	November 5, 2021

1.0 Applicability

- 1.1 In addition to any other applicable legal requirements, the drinking water system identified above shall be altered and operated in accordance with the conditions of this drinking water works permit and the licence #138-101.
- 1.2 The definitions and conditions of licence #138-101 are incorporated into this permit and also apply to this drinking water system.

2.0 Alterations to the Drinking Water System

- 2.1 Any document issued by the Director to be incorporated into Schedule C to this drinking water works permit shall provide authority to alter the drinking water system in accordance with the applicable conditions of this drinking water works permit and licence #138-101.
- 2.2 All documents issued by the Director as described in condition 2.1 shall form part of this drinking water works permit.
- 2.3 All parts of the drinking water system in contact with drinking water that are added, modified, replaced, extended shall be disinfected in accordance with a procedure approved by the Director or in accordance with the applicable provisions of the following documents:
- a) As of August 10, 2020 the ministry's Watermain Disinfection Procedure, dated August 1, 2020;
 - b) Subject to condition 2.3.2, any updated version of the ministry's Watermain Disinfection Procedure;
 - c) AWWA C652 – Standard for Disinfection of Water-Storage Facilities;
 - d) AWWA C653 – Standard for Disinfection of Water Treatment Plants; and
 - e) AWWA C654 – Standard for Disinfection of Wells.
- 2.3.1 For greater clarity, where an activity has occurred that could introduce contamination, including but not limited to repair, maintenance, or physical / video inspection, all equipment that may come in contact with the drinking water system shall be disinfected in accordance with the requirements of condition 2.3. above.
- 2.3.2 Updated requirements described in condition 2.3 b) are effective six months from the date of publication of the updated Watermain Disinfection Procedure.

- 2.4 The owner shall notify the Director in writing within thirty (30) days of the placing into service or the completion of any addition, modification, replacement, removal or extension of the drinking water system which had been authorized through:
- 2.4.1 Schedule B to this drinking water works permit which would require an alteration of the description of a drinking water system component described in Schedule A of this drinking water works permit;
 - 2.4.2 Any document to be incorporated in Schedule C to this drinking water works permit respecting works other than watermain; or
 - 2.4.3 Any approval issued prior to the issue date of the first drinking water works permit respecting works other than watermain which were not in service at the time of the issuance of the first drinking water works permit.
- 2.5 The notification required in condition 2.4 shall be submitted using the "Director Notification Form" published by the Ministry.
- 2.6 For greater certainty, the notification requirements set out in condition 2.4 do not apply to any addition, modification, replacement, removal or extension in respect of the drinking water system which:
- 2.6.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03;
 - 2.6.2 Constitutes maintenance or repair of the drinking water system; or
 - 2.6.3 Is a watermain authorized by condition 3.1 of Schedule B of this drinking water works permit.
- 2.7 The owner shall notify the legal owner of any part of the drinking water system that is prescribed as a municipal drinking water system by section 2 of O. Reg. 172/03 of the requirements of the licence and this drinking water works permit as applicable to the prescribed system.
- 2.8 For greater certainty, the owner may only carry out alterations to the drinking water system in accordance with this drinking water works permit after having satisfied other applicable legal obligations, including those arising from the *Environmental Assessment Act*, *Niagara Escarpment Planning and Development Act*, *Oak Ridges Moraine Conservation Act, 2001* and *Greenbelt Act, 2005*.

3.0 Watermain Additions, Modifications, Replacements and Extensions

- 3.1 The owner may alter the drinking water system, or permit it to be altered by a person acting on the owner's behalf, by adding, modifying, replacing or extending a watermain within the distribution system subject to the following conditions:
- 3.1.1 The design of the watermain addition, modification, replacement or extension:
 - a) Has been prepared by a licensed engineering practitioner;
 - b) Has been designed only to transmit water and has not been designed to treat water;

- c) Satisfies the design criteria set out in the Ministry publication “Watermain Design Criteria for Future Alterations Authorized under a Drinking Water Works Permit – June 2012”, as amended from time to time; and
 - d) Is consistent with or otherwise addresses the design objectives contained within the Ministry publication “Design Guidelines for Drinking Water Systems, 2008”, as amended from time to time.
- 3.1.2 The maximum demand for water exerted by consumers who are serviced by the addition, modification, replacement or extension of the watermain will not result in an exceedance of the rated capacity of a treatment subsystem or the maximum flow rate for a treatment subsystem component as specified in the licence, or the creation of adverse conditions within the drinking water system.
- 3.1.3 The watermain addition, modification, replacement or extension will not adversely affect the distribution system’s ability to maintain a minimum pressure of 140 kPa at ground level at all points in the distribution system under maximum day demand plus fire flow conditions.
- 3.1.4 Secondary disinfection will be provided to water within the added, modified, replaced or extended watermain to meet the requirements of O. Reg. 170/03.
- 3.1.5 The watermain addition, modification, replacement or extension is wholly located within the municipal boundary over which the owner has jurisdiction.
- 3.1.6 The owner of the drinking water system consents in writing to the watermain addition, modification, replacement or extension.
- 3.1.7 A licensed engineering practitioner has verified in writing that the watermain addition, modification, replacement or extension meets the requirements of condition 3.1.1.
- 3.1.8 The owner of the drinking water system has verified in writing that the watermain addition, modification, replacement or extension meets the requirements of conditions 3.1.2 to 3.1.6.
- 3.2 The authorization for the addition, modification, replacement or extension of a watermain provided for in condition 3.1 does not include the addition, modification, replacement or extension of a watermain that:
 - 3.2.1 Passes under or through a body of surface water, unless trenchless construction methods are used;
 - 3.2.2 Has a nominal diameter greater than 750 mm;
 - 3.2.3 Results in the fragmentation of the drinking water system; or
 - 3.2.4 Connects to another drinking water system, unless:
 - a) Prior to construction, the owner of the drinking water system seeking the connection obtains written consent from the owner or owner’s delegate of the drinking water system being connected to; and

- b) The owner of the drinking water system seeking the connection retains a copy of the written consent from the owner or owner's delegate of the drinking water system being connected to as part of the record that is recorded and retained under condition 3.3.
- 3.3 The verifications required in conditions 3.1.7 and 3.1.8 shall be:
 - 3.3.1 Recorded on "Form 1 – Record of Watermains Authorized as a Future Alteration", as published by the Ministry, prior to the watermain addition, modification, replacement or extension being placed into service; and
 - 3.3.2 Retained for a period of ten (10) years by the owner.
- 3.4 For greater certainty, the verification requirements set out in condition 3.3 do not apply to any addition, modification, replacement or extension in respect of the drinking water system which:
 - 3.4.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or
 - 3.4.2 Constitutes maintenance or repair of the drinking water system.
- 3.5 The document or file referenced in Column 1 of Table 1 of Schedule A of this drinking water works permit that sets out watermains shall be retained by the owner and shall be updated to include watermain additions, modifications, replacements and extensions within 12 months of the addition, modification, replacement or extension.
- 3.6 The updates required by condition 3.5 shall include watermain location relative to named streets or easements and watermain diameter.
- 3.7 Despite clause (a) of condition 3.1.1 and condition 3.1.7, with respect to the replacement of an existing watermain or section of watermain that is 6.1 meters in length or less, if a licensed engineering practitioner has:
 - 3.7.1 inspected the replacement prior to it being put into service;
 - 3.7.2 prepared a report confirming that the replacement satisfies clauses (b), (c) and (d) of condition 3.1.1 (i.e. "Form 1 – Record of Watermains Authorized by a Future Alteration" (Form 1), Part 3, items No. 2, 3 and 4); and
 - 3.7.3 appended the report referred to in condition 3.7.2 to the completed Form 1,

the replacement is exempt from the requirements that the design of the replacement be prepared by a licensed engineering practitioner and that a licensed engineering practitioner verify on Form 1, Part 3, item No. 1 that a licensed engineering practitioner prepared the design of the replacement.
- 3.8 For greater certainty, the exemption in condition 3.7 does not apply to the replacement of an existing watermain or section of watermain if two or more sections of pipe, each of which is 6.1 meters in length or less, are joined together, if the total length of replacement pipes joined together is greater than 6.1 meters.

4.0 Minor Modifications to the Drinking Water System

- 4.1 The drinking water system may be altered by adding, modifying or replacing the following components in the drinking water system:
 - 4.1.1 Coagulant feed systems in the treatment system, including the location and number of dosing points:
 - a) Prior to making any alteration to the drinking water system under condition 4.1.1, the owner shall undertake a review of the impacts that the alteration might have on corrosion control or other treatment processes; and
 - b) The owner shall notify the Director in writing within thirty (30) days of any alteration made under condition 4.1.1 and shall provide the Director with a copy of the review.
 - c) The notification required in condition 4.1.1 b) shall be submitted using the "Director Notification Form" published by the Ministry
 - 4.1.2 Instrumentation and controls, including new SCADA systems and upgrades to SCADA system hardware;
 - 4.1.3 SCADA system software or programming that:
 - a) Measures, monitors or reports on a regulated parameter;
 - b) Measures, monitor or reports on a parameter that is used to calculate CT; or,
 - c) Calculates CT for the system or is part of the process algorithm that calculates log removal, where the impacts of addition, modification or replacement have been reviewed by a licensed engineering practitioner;
 - 4.1.4 Filter media, backwashing equipment, filter troughs, and under-drains and associated equipment in the treatment system;
 - 4.1.5 Spill containment works; or,
 - 4.1.6 Coarse screens and fine screens
- 4.2 The drinking water system may be altered by adding, modifying, replacing or removing the following components in the drinking water system:
 - 4.2.1 Treated water pumps, pressure tanks, and associated equipment;
 - 4.2.2 Raw water pumps and process pumps in the treatment system;
 - 4.2.3 Inline booster pumping stations that are not associated with distribution system storage facilities and are on a watermain with a nominal diameter not exceeding 200 mm;
 - 4.2.4 Re-circulation devices within distribution system storage facilities;
 - 4.2.5 In-line mixing equipment;

- 4.2.6 Chemical metering pumps and chemical handling pumps;
- 4.2.7 Chemical storage tanks (excluding fuel storage tanks) and associated equipment; or,
- 4.2.8 Measuring and monitoring devices that are not required by regulation, by a condition in the Drinking Water Works Permit, or by a condition otherwise imposed by the Ministry.
- 4.2.9 Chemical injection points;
- 4.2.10 Valves.
- 4.3 The drinking water system may be altered by replacing the following:
 - 4.3.1 Raw water piping, treatment process piping or treated water piping within the treatment subsystem;
 - 4.3.2 Measuring and monitoring devices that are required by regulation, by a condition in the Drinking Water Works Permit or by a condition otherwise imposed by the Ministry.
 - 4.3.3 Coagulants and pH adjustment chemicals, where the replacement chemicals perform the same function;
 - a) Prior to making any alteration to the drinking water system under condition 4.3.3, the owner shall undertake a review of the impacts that the alteration might have on corrosion control or other treatment processes; and
 - b) The owner shall notify the Director in writing within thirty (30) days of any alteration made under condition 4.3.3 and shall provide the Director with a copy of the review.
 - c) The notification required in condition 4.3.3 b) shall be submitted using the "Director Notification Form" published by the Ministry.
- 4.4 Any alteration of the drinking water system made under conditions 4.1, 4.2 or 4.3 shall not result in:
 - 4.4.1 An exceedance of a treatment subsystem rated capacity or a treatment subsystem component maximum flow rate as specified in the licence;
 - 4.4.2 The bypassing or removal of any unit process within a treatment subsystem;
 - 4.4.3 The addition of any new unit process other than coagulation within a treatment subsystem;
 - 4.4.4 A deterioration in the quality of drinking water provided to consumers;
 - 4.4.5 A reduction in the reliability or redundancy of any component of the drinking water system;

- 4.4.6 A negative impact on the ability to undertake compliance and other monitoring necessary for the operation of the drinking water system; or
- 4.4.7 An adverse effect on the environment.
- 4.5 The owner shall verify in writing that any addition, modification, replacement or removal of drinking water system components in accordance with conditions 4.1, 4.2 or 4.3 has met the requirements of the conditions listed in condition 4.4.
- 4.6 The verifications and documentation required in condition 4.5 shall be:
 - 4.6.1 Recorded on "Form 2 – Record of Minor Modifications or Replacements to the Drinking Water System" published by the Ministry, prior to the modified or replaced components being placed into service; and
 - 4.6.2 Retained for a period of ten (10) years by the owner.
- 4.7 For greater certainty, the verification requirements set out in conditions 4.5 and 4.6 do not apply to any addition, modification, replacement or removal in respect of the drinking water system which:
 - 4.7.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or
 - 4.7.2 Constitutes maintenance or repair of the drinking water system, including software changes to a SCADA system that are not listed in condition 4.1.3
- 4.8 The owner shall update any drawings maintained for the drinking water system to reflect the modification or replacement of the works, where applicable.

5.0 Equipment with Emissions to the Air

- 5.1 The drinking water system may be altered by adding, modifying or replacing any of the following drinking water system components that may discharge or alter the rate or manner of a discharge of a compound of concern to the air:
 - 5.1.1 Any equipment, apparatus, mechanism or thing that is used for the transfer of outdoor air into a building or structure that is not a cooling tower;
 - 5.1.2 Any equipment, apparatus, mechanism or thing that is used for the transfer of indoor air out of a space used for the production, processing, repair, maintenance or storage of goods or materials, including chemical storage;
 - 5.1.3 Laboratory fume hoods used for drinking water testing, quality control and quality assurance purposes;
 - 5.1.4 Low temperature handling of compounds with a vapor pressure of less than 1 kilopascal;
 - 5.1.5 Maintenance welding stations;
 - 5.1.6 Minor painting operations used for maintenance purposes;

- 5.1.7 Parts washers for maintenance shops;
 - 5.1.8 Emergency chlorine and ammonia gas scrubbers and absorbers;
 - 5.1.9 Venting for activated carbon units for drinking water taste and odour control;
 - 5.1.10 Venting for a stripping unit for methane removal from a groundwater supply;
 - 5.1.11 Venting for an ozone treatment unit;
 - 5.1.12 Natural gas or propane fired boilers, water heaters, space heaters and make-up air units with a total facility-wide heat input rating of less than 20 million kilojoules per hour, and with an individual fuel energy input of less than or equal to 10.5 gigajoules per hour; or
 - 5.1.13 Emergency generators that fire No. 2 fuel oil (diesel fuel) with a sulphur content of 0.5 per cent or less measured by weight, natural gas, propane, gasoline or biofuel, and that are used for emergency duty only with periodic testing.
- 5.2 The owner shall not make an addition, modification, or replacement described in condition 5.1 in relation to an activity that is not related to the treatment and/or distribution of drinking water.
- 5.3 The emergency generators identified in condition 5.1.13 shall not be used for non-emergency purposes including the generation of electricity for sale or for peak shaving purposes.
- 5.4 The owner shall prepare an emission summary table for nitrogen oxides emissions only, for each addition, modification or replacement of emergency generators identified in condition 5.1.13.

Performance Limits

- 5.5 The owner shall ensure that a drinking water system component identified in conditions 5.1.1 to 5.1.13 is operated at all times to comply with the following limits:
- 5.5.1 For equipment other than emergency generators, the maximum concentration of any compound of concern at a point of impingement shall not exceed the corresponding point of impingement limit;
 - 5.5.2 For emergency generators, the maximum concentration of nitrogen oxides at sensitive receptors shall not exceed the applicable point of impingement limit, and at non-sensitive receptors shall not exceed the Ministry half-hourly screening level of 1880 ug/m³ as amended; and
 - 5.5.3 The noise emissions comply at all times with the limits set out in publication NPC-300, as applicable.
- 5.6 The owner shall verify in writing that any addition, modification or replacement of works in accordance with condition 5.1 has met the requirements of the conditions listed in condition 5.5.

- 5.7 The owner shall document how compliance with the performance limits outlined in condition 5.5.3 is being achieved, through noise abatement equipment and/or operational procedures.
- 5.8 The verifications and documentation required in conditions 5.6 and 5.7 shall be:
- 5.8.1 Recorded on "Form 3 – Record of Addition, Modification or Replacement of Equipment Discharging a Contaminant of Concern to the Atmosphere", as published by the Ministry, prior to the additional, modified or replacement equipment being placed into service; and
- 5.8.2 Retained for a period of ten (10) years by the owner.
- 5.9 For greater certainty, the verification and documentation requirements set out in conditions 5.6 and 5.8 do not apply to any addition, modification or replacement in respect of the drinking water system which:
- 5.9.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or
- 5.9.2 Constitutes maintenance or repair of the drinking water system.
- 5.10 The owner shall update any drawings maintained for the works to reflect the addition, modification or replacement of the works, where applicable.

6.0 Previously Approved Works

- 6.1 The owner may add, modify, replace or extend, and operate part of a municipal drinking water system if:
- 6.1.1 An approval was issued after January 1, 2004 under section 36 of the SDWA in respect of the addition, modification, replacement or extension and operation of that part of the municipal drinking water system;
- 6.1.2 The approval expired by virtue of subsection 36(4) of the SDWA; and
- 6.1.3 The addition, modification, replacement or extension commenced within five years of the date that activity was approved by the expired approval.

7.0 System-Specific Conditions

- 7.1 Not Applicable

8.0 Source Protection

- 8.1 Not Applicable

Schedule C: Authorization to Alter the Drinking Water System

System Owner	The Corporation of the Township of Cramahe
Permit Number	138-201
Drinking Water System Name	Colborne Drinking Water System
Permit Effective Date	November 5, 2021

1.0 General

- 1.1 Table 2 provides a reference list of all documents to be incorporated into Schedule C that have been issued as of the date that this permit was issued.

- 1.1.1 Table 2 is not intended to be a comprehensive list of all documents that are part of Schedule C. For clarity, any document issued by the Director to be incorporated into Schedule C after this permit has been issued is considered part of this drinking water works permit.

Table 2: Schedule C Documents				
Column 1 Issue #	Column 2 Issued Date	Column 3 Description	Column 4 Status	Column 5 DN#
1	October 8, 2021	Replacement Well	To be determined (TBD)	TBD

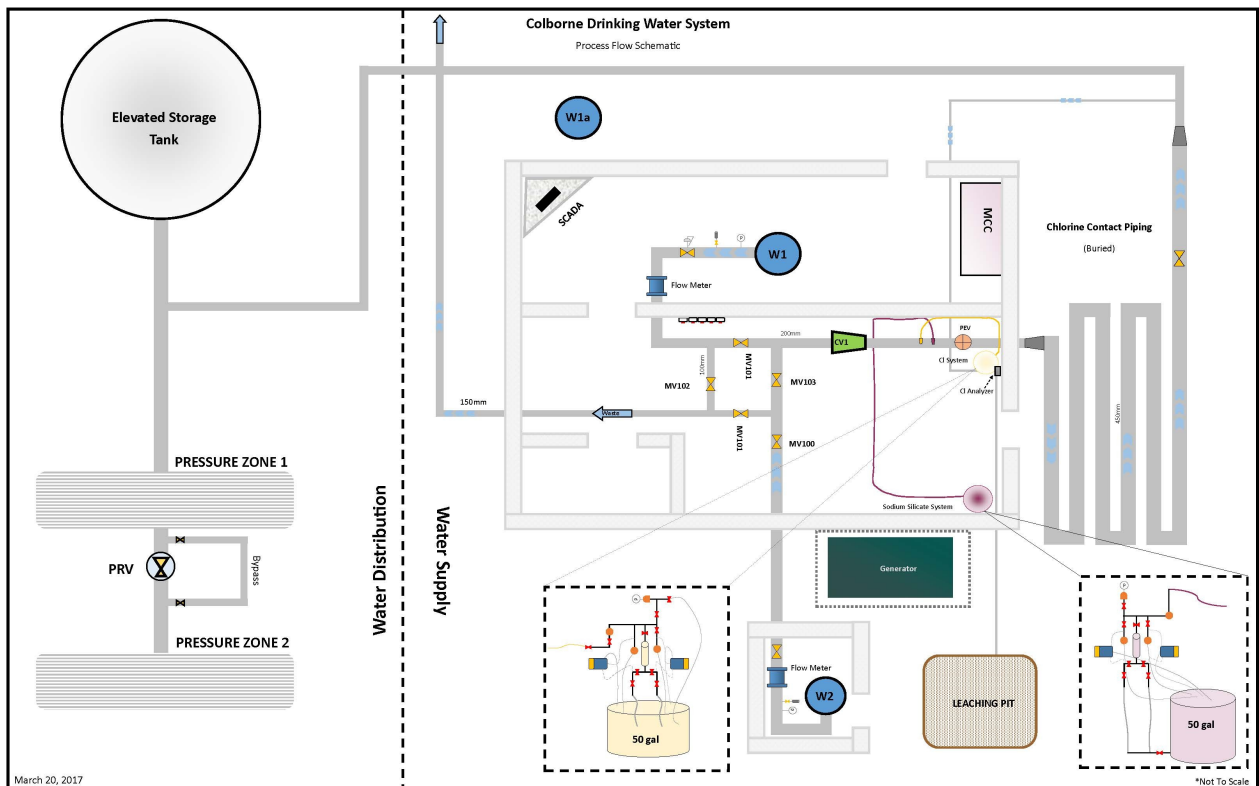
- 1.2 For each document described in columns 1, 2 and 3 of Table 2, the status of the document is indicated in column 4. Where this status is listed as 'Archived', the approved alterations have been completed and relevant portions of this permit have been updated to reflect the altered works. These 'Archived' Schedule C documents remain as a record of the alterations.

Schedule D: Process Flow Diagrams

System Owner	The Corporation of the Township of Cramahe
Permit Number	138-201
Drinking Water System Name	Colborne Drinking Water System
Permit Effective Date	November 5, 2021

1.0 Process Flow Diagrams

Colborne Drinking Water System



[Source: Operational Plan, Revision 8, November 12, 2015]

Note: this process flow diagram is for reference only, and represents a high level overview of the system as of November 12, 2015.



APPENDIX B

Municipal Drinking Water License 138-101



MUNICIPAL DRINKING WATER LICENCE

Licence Number: 138-101

Issue Number: 4

Pursuant to the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32, and the regulations made thereunder and subject to the limitations thereof, I hereby issue this municipal drinking water licence under Part V of the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32 to:

The Corporation of the Township of Cramahe

1 Toronto St., P.O. Box 357

Colborne ON

K0K 1S0

For the following municipal residential drinking water system:

Colborne Drinking Water System

This municipal drinking water licence includes the following:

Schedule	Description
Schedule A	Drinking Water System Information
Schedule B	General Conditions
Schedule C	System-Specific Conditions
Schedule D	Conditions for Relief from Regulatory Requirements
Schedule E	Pathogen Log Removal/Inactivation Credits

Upon the effective date of this drinking water licence #138-101, all previously issued versions of licence #138-101 are revoked and replaced by this licence.

DATED at TORONTO this 5th day of November, 2021

Signature

Aziz Ahmed, P.Eng.
Director
Part V, *Safe Drinking Water Act*, 2002

Schedule A: Drinking Water System Information

System Owner	The Corporation of the Township of Cramahe
Licence Number	138-101
Drinking Water System Name	Colborne Drinking Water System
Licence Effective Date	November 5, 2021

1.0 Licence Information

Licence Issue Date	November 5, 2021
Licence Effective Date	November 5, 2021
Licence Expiry Date	November 4, 2026
Application for Licence Renewal Date	May 3, 2026

2.0 Incorporated Documents

The following documents are applicable to the above drinking water system and form part of this licence:

2.1 Drinking Water Works Permit

Drinking Water System Name	Permit Number	Issue Date
Colborne Drinking Water System	138-201	November 5, 2021

2.2 Permits to Take Water

Water Taking Location	Permit Number	Issue Date
Well No. 1 & Well No 2	2363-8VMR6M	July 6, 2012

2.3 Other Documents

Document Title	Version Number	Version Date
Not Applicable	Not Applicable	Not Applicable

3.0 Financial Plans

The Financial Plan Number for the Financial Plan required to be developed for this drinking water system in accordance with O. Reg. 453/07 shall be:	138-301
Alternately, if one Financial Plan is developed for all drinking water systems owned by the owner, the Financial Plan Number shall be:	138-301A

4.0 Accredited Operating Authority

Drinking Water System or Operational Subsystems	Accredited Operating Authority	Operational Plan No.	Operating Authority No.
Colborne Drinking Water System	Aquatech Canadian Water Services Inc.	138-401	138-OA2

Schedule B: General Conditions

System Owner	The Corporation of the Township of Cramahe
Licence Number	138-101
Drinking Water System Name	Colborne Drinking Water System
Licence Effective Date	November 5, 2021

1.0 Definitions

1.1 Words and phrases not defined in this licence and the associated drinking water works permit shall be given the same meaning as those set out in the SDWA and any regulations made in accordance with that act, unless the context requires otherwise.

1.2 In this licence and the associated drinking water works permit:

“**adverse effect**”, “**contaminant**” and “**natural environment**” shall have the same meanings as in the EPA;

“**alteration**” may include the following in respect of this drinking water system:

- (a) An addition to the system,
- (b) A modification of the system,
- (c) A replacement of part of the system, and
- (d) An extension of the system;

“**compound of concern**” means a contaminant described in paragraph 4 subsection 26 (1) of O. Reg. 419/05, namely, a contaminant that is discharged to the air from a component of the drinking water system in an amount that is not negligible;

“**CT**” means the CT Disinfection Concept, as described in subsection 3.1.1 of the Ministry’s Procedure for Disinfection of Drinking Water in Ontario, dated July 29 2016.

“**Director**” means a Director appointed pursuant to section 6 of the SDWA for the purposes of Part V of the SDWA;

“**drinking water works permit**” means the drinking water works permit for the drinking water system, as identified in Schedule A of this licence and as amended from time to time;

“**emission summary table**” means a table described in paragraph 14 of subsection 26 (1) of O. Reg. 419/05;

“**EPA**” means the *Environmental Protection Act*, R.S.O. 1990, c. E.19;

“**financial plan**” means the financial plan required by O. Reg. 453/07;

“**Harmful Algal Bloom (HAB)**” means an overgrowth of aquatic algal bacteria that produce or have the potential to produce toxins in the surrounding water, when the algal

cells are damaged or die. Such bacteria are harmful to people and animals and include microcystins produced by cyanobacterial blooms.

“licence” means this municipal drinking water licence for the municipal drinking water system identified in Schedule A of this licence;

“licensed engineering practitioner” means a person who holds a licence, limited licence or temporary licence under the Professional Engineers Act;

“Ministry” means the Ontario Ministry of the Environment, Conservation and Parks;

“operational plan” means an operational plan developed in accordance with the Director’s Directions – Minimum Requirements for Operational Plans made under the authority of subsection 15(1) of the SDWA;

“owner” means the owner of the drinking water system as identified in Schedule A of this licence;

“OWRA” means the *Ontario Water Resources Act*, R.S.O. 1990, c. 0.40;

“permit to take water” means the permit to take water that is associated with the taking of water for purposes of the operation of the drinking water system, as identified in Schedule A of this licence and as amended from time to time;

“point of impingement” has the same meaning as in section 2 of O. Reg. 419/05 under the EPA;

“point of impingement limit” means the appropriate standard from Schedule 2 or 3 of O. Reg. 419/05 under the EPA and if a standard is not provided for a compound of concern, the concentration set out for the compound of concern in the document titled “Air Contaminants Benchmarks (ACB) List: Standards, guidelines and screening levels for assessing point of impingement concentrations of air contaminants”, as amended from time to time and published by the Ministry and available on a government of Ontario website;

“provincial officer” means a provincial officer designated pursuant to section 8 of the SDWA;

“publication NPC-300” means the Ministry publication titled “Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning” dated August 2013, as amended;

“SCADA system” means a supervisory control and data acquisition system used for process monitoring, automation, recording and/or reporting within the drinking water system;

“SDWA” means the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32;

“sensitive receptor” means any location where routine or normal activities occurring at reasonably expected times would experience adverse effect(s) from a discharge to air from an emergency generator that is a component of the drinking water system, including one or a combination of:

- (a) private residences or public facilities where people sleep (e.g.: single and multi-unit dwellings, nursing homes, hospitals, trailer parks, camping grounds, etc.),
- (b) institutional facilities (e.g.: schools, churches, community centres, day care centres, recreational centres, etc.),
- (c) outdoor public recreational areas (e.g.: trailer parks, play grounds, picnic areas, etc.), and
- (d) other outdoor public areas where there are continuous human activities (e.g.: commercial plazas and office buildings).

“sub-system” has the same meaning as in Ontario Regulation 128/04 (Certification of Drinking Water System Operators and Water Quality Analysts) under the SDWA;

“surface water” means water bodies (lakes, wetlands, ponds - including dug-outs), water courses (rivers, streams, water-filled drainage ditches), infiltration trenches, and areas of seasonal wetlands;

“UV” means ultraviolet, as in ultraviolet light produced from an ultraviolet reactor.

2.0 Applicability

- 2.1 In addition to any other applicable legal requirements, the drinking water system identified above shall be established, altered and operated in accordance with the conditions of the drinking water works permit and this licence.

3.0 Licence Expiry

- 3.1 This licence expires on the date identified as the licence expiry date in Schedule A of this licence.

4.0 Licence Renewal

- 4.1 Any application to renew this licence shall be made on or before the date identified as the application for licence renewal date set out in Schedule A of this licence.

5.0 Compliance

- 5.1 The owner and operating authority shall ensure that any person authorized to carry out work on or to operate any aspect of the drinking water system has been informed of the SDWA, all applicable regulations made in accordance with that act, the drinking water works permit and this licence and shall take all reasonable measures to ensure any such person complies with the same.

6.0 Licence and Drinking Water Works Permit Availability

- 6.1** At least one copy of this licence and the drinking water works permit shall be stored in such a manner that they are readily viewable by all persons involved in the operation of the drinking water system.

7.0 Permit to Take Water and Drinking Water Works Permit

- 7.1** A permit to take water identified in Schedule A of this licence is the applicable permit on the date identified as the Effective Date of this licence.
- 7.2** A drinking water works permit identified in Schedule A of this licence is the applicable permit on the date identified as the Effective Date of this licence.

8.0 Financial Plan

- 8.1** For every financial plan prepared in accordance with subsections 2(1) and 3(1) of O. Reg. 453/07, the owner of the drinking water system shall:
- 8.1.1 Ensure that the financial plan contains on the front page of the financial plan, the appropriate financial plan number as set out in Schedule A of this licence; and
- 8.1.2 Submit a copy of the financial plan to the Ministry of Municipal Affairs and Housing within three (3) months of receiving approval by a resolution of municipal council or the governing body of the owner.

9.0 Interpretation

- 9.1** Where there is a conflict between the provisions of this licence and any other document, the following hierarchy shall be used to determine the provision that takes precedence:
- 9.1.1 The SDWA;
- 9.1.2 A condition imposed in this licence that explicitly overrides a prescribed regulatory requirement;
- 9.1.3 A condition imposed in the drinking water works permit that explicitly overrides a prescribed regulatory requirement;
- 9.1.4 Any regulation made under the SDWA;
- 9.1.5 Any provision of this licence that does not explicitly override a prescribed regulatory requirement;
- 9.1.6 Any provision of the drinking water works permit that does not explicitly override a prescribed regulatory requirement;
- 9.1.7 Any application documents listed in this licence, or the drinking water works permit from the most recent to the earliest; and

- 9.1.8 All other documents listed in this licence, or the drinking water works permit from the most recent to the earliest.
- 9.1.9 Any other technical bulletin or procedure issued by the Ministry from the most recent to the earliest.
- 9.2** If any requirement of this licence or the drinking water works permit is found to be invalid by a court of competent jurisdiction, the remaining requirements of this licence and the drinking water works permit shall continue to apply.
- 9.3** The issuance of and compliance with the conditions of this licence and the drinking water works permit does not:
 - 9.3.1 Relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including the *Environmental Assessment Act*, R.S.O. 1990, c. E.18; and
 - 9.3.2 Limit in any way the authority of the appointed Directors and provincial officers of the Ministry to require certain steps be taken or to require the owner to furnish any further information related to compliance with the conditions of this licence or the drinking water works permit.
- 9.4** For greater certainty, nothing in this licence or the drinking water works permit shall be read to provide relief from regulatory requirements in accordance with section 46 of the SDWA, except as expressly provided in the licence or the drinking water works permit.

10.0 Adverse Effects

- 10.1** Nothing in this licence or the drinking water works permit shall be read as to permit:
 - 10.1.1 The discharge of a contaminant into the natural environment that causes or is likely to cause an adverse effect; or
 - 10.1.2 The discharge of any material of any kind into or in any waters or on any shore or bank thereof or into or in any place that may impair the quality of the water of any waters.
- 10.2** All reasonable steps shall be taken to minimize and ameliorate any adverse effect on the natural environment or impairment of the quality of water of any waters resulting from the operation of the drinking water system including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.
- 10.3** Fulfillment of one or more conditions imposed by this licence or the drinking water works permit does not eliminate the requirement to fulfill any other condition of this licence or the drinking water works permit.

11.0 Change of Owner or Operating Authority

- 11.1 This licence is not transferable without the prior written consent of the Director.
- 11.2 The owner shall notify the Director in writing at least 30 days prior to a change of any operating authority identified in Schedule A of this licence.
- 11.2.1 Where the change of operating authority is the result of an emergency situation, the owner shall notify the Director in writing of the change as soon as practicable.

12.0 Information to be Provided

- 12.1 Any information requested by a Director or a provincial officer concerning the drinking water system and its operation, including but not limited to any records required to be kept by this licence or the drinking water works permit, shall be provided upon request.

13.0 Records Retention

- 13.1 Except as otherwise required in this licence or the drinking water works permit, any records required by or created in accordance with this licence or the drinking water works permit, other than the records specifically referenced in section 12 or section 13 of O. Reg. 170/03, shall be retained for at least 5 years and made available for inspection by a provincial officer, upon request.

14.0 Chemicals and Materials

- 14.1 All chemicals and materials used in the alteration or operation of the drinking water system that come into contact with water within the system shall meet all applicable standards set by both the American Water Works Association ("AWWA") and the American National Standards Institute ("ANSI") safety criteria standards NSF/60, NSF/61 and NSF/372.
- 14.1.1 In the event that the standards are updated, the owner may request authorization from the Director to use any on hand chemicals and materials that previously met the applicable standards.
- 14.2 The most current chemical and material product registration documentation from a testing institution accredited by either the Standards Council of Canada or by the American National Standards Institution ("ANSI") shall be available at all times for each chemical and material used in the operation of the drinking water system that comes into contact with water within the system.
- 14.3 Conditions 14.1 and 14.2 do not apply in the case of the following:
- 14.3.1 Water pipe and pipe fittings meeting AWWA specifications made from ductile iron, cast iron, PVC, fibre and/or steel wire reinforced cement pipe or high density polyethylene (HDPE);
- 14.3.2 Articles made from stainless steel, glass, HDPE or Teflon®;

- 14.3.3 Cement mortar for watermain lining and for water contacting surfaces of concrete structures made from washed aggregates and Portland cement;
- 14.3.4 Gaskets that are made from NSF approved materials;
- 14.3.5 Food grade oils and lubricants, food grade anti-freeze, and other food grade chemicals and materials that are compatible for drinking water use that may come into contact with drinking water, but are not added directly to the drinking water; or
- 14.3.6 Any particular chemical or material where the owner has written documentation signed by the Director that indicates that the Ministry is satisfied that the chemical or material is acceptable for use within the drinking water system and the chemical or material is only used as permitted by the documentation.

15.0 Drawings

- 15.1 All drawings and diagrams in the possession of the owner that show any treatment subsystem as constructed shall be retained by the owner unless the drawings and diagrams are replaced by a revised or updated version showing the subsystem as constructed subsequent to the alteration.
- 15.2 Any alteration to any treatment subsystem shall be incorporated into process flow diagrams, process and instrumentation diagrams, and record drawings and diagrams within one year of the alteration being completed or placed into service.
- 15.3 Process flow diagrams and process and instrumentation diagrams for any treatment subsystem shall be kept in a place, or made available in such a manner, that they may be readily viewed by all persons responsible for all or part of the operation of the drinking water system.

16.0 Operations and Maintenance Manual

- 16.1 An up-to-date operations and maintenance manual or manuals shall be maintained and applicable parts of the manual or manuals shall be made available for reference to all persons responsible for all or part of the operation or maintenance of the drinking water system.
- 16.2 The operations and maintenance manual or manuals, shall include at a minimum:
 - 16.2.1 The requirements of this licence and associated procedures;
 - 16.2.2 The requirements of the drinking water works permit for the drinking water system;
 - 16.2.3 A description of the processes used to achieve primary and secondary disinfection within the drinking water system including where applicable:
 - a) A copy of the CT calculations that were used as the basis for primary disinfection under worst case operating conditions and other operating conditions, if applicable; and

- b) The validated operating conditions for UV disinfection equipment, including a copy of the validation certificate;
- 16.2.4 Procedures for monitoring and recording the in-process parameters necessary for the control of any treatment subsystem and for assessing the performance of the drinking water system;
- 16.2.5 Procedures for the operation and maintenance of monitoring equipment;
- 16.2.6 Contingency plans and procedures for the provision of adequate equipment and material to deal with emergencies, upset conditions and equipment breakdown;
- 16.2.7 Procedures for dealing with complaints related to the drinking water system, including the recording of the nature of the complaint and any investigation and corrective action taken in respect of the complaint;
- 16.2.8 An inspection schedule for all wells associated with the drinking water system, including all production wells, standby wells, test wells and monitoring wells;
- 16.2.9 Well inspection and maintenance procedures that consider the entire well structure of each well including all above and below grade well components; and
- 16.2.10 Remedial action plans for situations where an inspection indicates non-compliance with respect to regulatory requirements and/or risk to raw well water quality.
- 16.3** Procedures necessary for the operation and maintenance of any alterations to the drinking water system shall be incorporated into the operations and maintenance manual or manuals prior to those alterations coming into operation.
- 16.4** All of the procedures included or referenced within the operations and maintenance manual must be implemented.

Schedule C: System-Specific Conditions

System Owner	The Corporation of the Township of Cramahe
Licence Number	138-101
Drinking Water System Name	Colborne Drinking Water System
Licence Effective Date	November 5, 2021

1.0 System Performance

Rated Capacity

- 1.1** For each treatment subsystem listed in column 1 of Table 1, the maximum daily volume of treated water that flows from the treatment subsystem to the distribution system shall not exceed the value identified as the rated capacity in column 2 of the same row.

Table 1: Rated Capacity	
Column 1 Treatment Subsystem Name	Column 2 Rated Capacity (m ³ /day)
Colborne Water Treatment Plant	3,283

Maximum Flow Rates

- 1.2** For each treatment subsystem listed in column 1 of Table 2, the maximum flow rate of water that flows into a treatment subsystem component listed in column 2 shall not exceed the value listed in column 3 of the same row.

Table 2: Maximum Flow Rates		
Column 1 Treatment Subsystem Name	Column 2 Treatment Subsystem Component	Column 3 Maximum Flow Rate (L/s)
Not Applicable	Not Applicable	Not Applicable

- 1.3** Despite conditions 1.1 and 1.2, a treatment subsystem may be operated temporarily at a maximum daily volume and/or a maximum flow rate above the values set out in column 2 of Table 1 and column 3 of Table 2 respectively for the purposes of fighting a large fire or for the maintenance of the drinking water system.
- 1.4** Condition 1.3 does not authorize the discharge into the distribution system of any water that does not meet all of the requirements of this licence and all other regulatory requirements, including compliance with the Ontario Drinking Water Quality Standards.

Residuals Management

- 1.5** In respect of an effluent discharged into the natural environment from a treatment subsystem or treatment subsystem component listed in column 1 of Table 3:
- 1.5.1 The annual average concentration of a test parameter identified in column 2 shall:
- a) not exceed the value in column 3 of the same row; and
 - b) be calculated at least once monthly as the running annual average based on the previous twelve months of results;
- 1.5.2 Where the average concentration of a test parameter identified in column 2 exceeds the value in column 3, the concentration shall be reported to the local Ministry district office within 72 hours of receipt of the last lab result used in the calculation;
- 1.5.3 The maximum concentration of a test parameter identified in column 2 shall not exceed the value in column 4 of the same row;
- 1.5.4 Where the maximum concentration of a test parameter identified in column 2 exceeds the value in column 4, the discharge shall be reported in accordance with s.13.2 of O. Reg. 675.98 and recorded in accordance with s.12.2 of O. Reg. 675.98 within 24 hours of receipt of the lab result; and,
- 1.5.5 The test parameters listed in column 2 of Table 3 shall be sampled in accordance with conditions 5.2, 5.3 and 5.4 of Schedule C in this Licence.

Table 3: Residuals Management			
Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Annual Average Concentration (mg/L)	Column 4 Maximum Concentration (mg/L)
Not Applicable	Not Applicable	Not Applicable	Not Applicable

UV Disinfection Equipment Performance

- 1.6** For each treatment subsystem or treatment subsystem component listed in column 1 of Table 4, and while directing water to the distribution system and being used to meet pathogen log removal/inactivation credits specified in Schedule E:
- 1.6.1 The UV disinfection equipment shall be operated within the validated limits for the equipment at all times such that a continuous pass-through UV dose is maintained throughout the life time of the UV lamp(s) that is at least the minimum continuous pass-through UV dose set out in column 2 of the same row
- 1.6.2 In addition to any other sampling, analysis and recording that may be required, the ultraviolet light disinfection equipment shall test for the test parameters set

out in column 4 of the same row at a testing frequency of once every five (5) minutes or less and record the test data at a recording frequency of once every four (4) hours or less;

- 1.6.3 If there is a UV disinfection equipment alarm signaling that the disinfection equipment is malfunctioning, has lost power, or is not providing the appropriate level of disinfection the test parameters set out in column 4 of the same row shall be recorded at a recording frequency of once every five minutes or less until the alarm condition has been corrected;
- 1.6.4 A monthly summary report shall be prepared at the end of each calendar month which sets out the time, date and duration of each UV equipment alarm described in condition 1.6.3, the volume of water treated during each alarm period and the actions taken by the operating authority to correct the alarm situation;

Table 4: UV Disinfection Equipment

Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Minimum Continuous Pass-Through UV Dose (mJ/cm ²)	Column 3 Control Strategy	Column 4 Test Parameter
Not Applicable	Not Applicable	Not Applicable	Not Applicable

2.0 Flow Measurement and Recording Requirements

- 2.1 For each treatment subsystem identified in column 1 of Table 1 and in addition to any other flow measurement and recording that may be required, continuous flow measurement and recording shall be undertaken for:
- 2.1.1 The flow rate (L/s) and daily volume (m³/day) of treated water that flows from the treatment subsystem to the distribution system.
- 2.1.2 The flow rate (L/s) and daily volume (m³/day) of water that flows into the treatment subsystem.
- 2.2 For each treatment subsystem component identified in column 2 of Table 2 and in addition to any other flow measurement and recording that may be required, continuous flow measurement and recording shall be undertaken for the flow rate and daily volume of water that flows into the treatment subsystem component.
- 2.3 Where a rated capacity from Table 1 or a maximum flow rate from Table 2 is exceeded, the following shall be recorded:
- 2.3.1 The difference between the measured amount and the applicable rated capacity or maximum flow rate specified in Table 1 or Table 2;

- 2.3.2 The time and date of the measurement;
- 2.3.3 The reason for the exceedance; and
- 2.3.4 The duration of time that lapses between the applicable rated capacity or maximum flow rate first being exceeded and the next measurement where the applicable rated capacity or maximum flow rate is no longer exceeded.

3.0 Calibration of Flow Measuring Devices

- 3.1 All flow measuring devices that are required by regulation, by a condition in the drinking water works permit 138-201, or by a condition otherwise imposed by the Ministry, shall be checked and where necessary calibrated in accordance with the manufacturer's instructions.
- 3.2 If the manufacturer's instructions do not indicate how often to check and calibrate a flow measuring device, the equipment shall be checked and where necessary calibrated at least once every 12 months during which the drinking water system is in operation.
 - 3.2.1 For greater certainty, if condition 3.2 applies, the equipment shall be checked and where necessary calibrated not more than 30 days after the first anniversary of the day the equipment was checked and calibrated in the previous 12-month period.

4.0 Calibration of CT Monitoring System

- 4.1 Any measuring instrumentation that forms part of the monitoring system for CT shall be checked and where necessary calibrated at least once every 12 months during which the drinking water system is in operation, or more frequently in accordance with the manufacturer's instructions.
 - 4.1.1 For greater certainty, if condition 4.1 applies, the instrumentation shall be checked and where necessary calibrated not more than 30 days after the first anniversary of the day the equipment was checked and calibrated in the previous 12-month period.

5.0 Additional Sampling, Testing and Monitoring

Drinking Water Health and Non-Health Related Parameters

- 5.1 For each treatment subsystem or treatment subsystem component identified in column 1 of Tables 5 and 6 and in addition to any other sampling, testing and monitoring that may be required, sampling, testing and monitoring shall be undertaken for a test parameter listed in column 2 at the sampling frequency listed in column 3 and at the monitoring location listed in column 4 of the same row.

Table 5: Drinking Water Health Related Parameters

Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Sampling Frequency	Column 4 Monitoring Location
Not Applicable	Not Applicable	Not Applicable	Not Applicable

Table 6: Drinking Water Non-Health Related Parameters

Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Sampling Frequency	Column 4 Monitoring Location
Not Applicable	Not Applicable	Not Applicable	Not Applicable

Environmental Discharge Parameters

- 5.2** For each treatment subsystem or treatment subsystem component identified in column 1 of Table 7 and in addition to any other sampling, testing and monitoring that may be required, sampling, testing and monitoring shall be undertaken for a test parameter listed in column 2 using the sample type identified in column 3 at the sampling frequency listed in column 4 and at the monitoring location listed in column 5 of the same row.
- 5.3** For the purposes of Table 7:
- 5.3.1 Manual Composite means the mean of at least three grab samples taken during a discharge event, with one sample being taken immediately following the commencement of the discharge event, one sample being taken approximately at the mid-point of the discharge event and one sample being taken immediately before the end of the discharge event; and
- 5.3.2 Automated Composite means samples must be taken during a discharge event by an automated sampler at a minimum sampling frequency of once per hour.
- 5.4** Any sampling, testing and monitoring for the test parameter Total Suspended Solids shall be performed in accordance with the requirements set out in the publication "Standard Methods for the Examination of Water and Wastewater", 23rd Edition, 2017, or as amended from time to time by more recently published editions.

Table 7: Environmental Discharge Parameters

Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Sample Type	Column 4 Sampling Frequency	Column 5 Monitoring Location
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

- 5.5** Pursuant to Condition 10 of Schedule B of this licence, the owner may undertake the following environmental discharges associated with the maintenance and/or repair of the drinking water system:
- 5.5.1 The discharge of potable water from a watermain to a road or storm sewer;
 - 5.5.2 The discharge of potable water from a water storage facility or pumping station:
 - a) To a road or storm sewer; or
 - b) To a watercourse where the discharge has been dechlorinated and if necessary, sediment and erosion control measures have been implemented.
 - 5.5.3 The discharge of dechlorinated non-potable water from a watermain, water storage facility or pumping station to a road or storm sewer;
 - 5.5.4 The discharge of raw water from a groundwater well to the environment where if necessary, sediment and erosion control measures have been implemented; and
 - 5.5.5 The discharge of raw water, potable water or non-potable water from a treatment subsystem to the environment where if necessary, the discharge has been dechlorinated and sediment and erosion control measures have been implemented.
 - 5.5.6 The discharge of any excess water to a road, storm sewer or the environment, associated with the management of materials excavated as part of watermain construction or repair, where necessary sediment, erosion and environmental control measures have been implemented.

6.0 Studies Required

- 6.1** Not Applicable

7.0 Source Protection

- 7.1** The owner of the drinking water system shall implement risk management measures, as appropriate, to manage any potential threat to drinking water that results from the operation of the drinking water system.
- 7.2** The owner of the system shall notify the Director in writing within thirty (30) days of any approved changes to an applicable source protection plan that impact the assessed threat level of a fuel oil system identified in Schedule A of drinking water works permit.
- 7.3** The notification required in condition 7.2 shall include:
- 7.3.1 A description of the changes and their impact on the assessed threat level of the fuel oil system(s); and,
 - 7.3.2 A timeline for re-assessing the threat level and providing the results of the assessment to the Director.

Schedule D: Conditions for Relief from Regulatory Requirements

System Owner	The Corporation of the Township of Cramahe
Licence Number	138-101
Drinking Water System Name	Colborne Drinking Water System
Licence Effective Date	November 5, 2021

Effective November 5, 2021, no relief from regulatory requirements is authorized by the Director under section 46 of the SDWA in respect of the drinking water system.

Schedule E: Pathogen Log Removal/Inactivation Credits

System Owner	The Corporation of the Township of Cramahe
Licence Number	138-101
Drinking Water System Name	Colborne Drinking Water System
Licence Effective Date	November 5, 2021

1.0 Primary Disinfection Pathogen Log Removal/Inactivation Credits

Well Pumphouse No.1

Well No.1, Well No.2 [GROUNDWATER]

Minimum Log Removal/ Inactivation Required	Cryptosporidium Oocysts	Giardia Cysts	Viruses
Well Pumphouse No.1	0	0	2

Log Removal/Inactivation Credits Assigned ^a	Cryptosporidium Oocysts	Giardia Cysts	Viruses
Chlorination [CT:215 m length, 450 mm diameter Chlorine Contact Pipe]	-	-	2+

^a Log removal/inactivation credit assignment is based on each treatment process being fully operational and the applicable log removal/inactivation credit assignment criteria being met.

Treatment Component	Log Removal/Inactivation Credit Assignment Criteria
Chlorination	<ol style="list-style-type: none"> 1. Sampling and testing for free chlorine residual shall be carried out by continuous monitoring equipment in the treatment process at or near a location where the intended contact time has just been completed in accordance with the Ministry's Procedure for Disinfection of Drinking Water in Ontario; and 2. At all times, CT provided shall be greater than or equal to the CT required to achieve the log removal credits assigned.
Primary Disinfection Notes	



APPENDIX C

Permit to Take Water 8612-BNENBH

**Ministry of the Environment,
Conservation and Parks**

Eastern Region
Technical Support Section
Water Resources
1259 Gardiners Rd, PO Box 22032
Kingston, ON
K7P 3J6
Tel: (613) 549-4000

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

Direction régionale de l'Est
Section du Soutien Technique
Ressource en eau
1259 Chemin Gardiners, CP 22032
Kingston, ON
K7P 3J6
Tél:(613) 549-4000



April 11, 2020

Jeff Hoskin
The Corporation of the Township of Cramahe
1 Toronto St
Cramahe, Ontario, K0K 1S0
Canada

Dear Mr. Hoskin,

RE: Permit To Take Water #8612-BNENBH
Colborne Drinking Water System
Lot: 30, Concession: 2
Geographic Township of Cramahe
Cramahe, County of Northumberland

Reference Number 1116-BKPL6C

Please find attached Permit to Take Water #8612-BNENBH which authorizes the withdrawal of water in accordance with the application for this Permit to Take Water, dated December 20, 2019 and signed by Jeff Hoskin.

Please note this Permit expires April 6, 2030 and cancels and replaces Permit #2363-8VMR6M. This Permit has been amended to reflect the replacement of Well #1 with Well #1A.

Section 9(3) of Ontario Regulation 387/04 (Water Taking and Transfer) requires all holders of a permit to report daily water taking amounts annually, in a manner and form approved by the Director (<https://www.lrcsde.lrc.gov.on.ca/wtrs/>). For the purpose of s. 9(3), such reports shall be submitted electronically to the Water Taking Reporting System (WTRS) electronic database or via hard copy, as described in the Technical Bulletin entitled "Permit to Take Water Program Monitoring and Reporting of Water Takings", dated November 2006, PIBs 6003e (<http://www.ontla.on.ca/library/repository/mon/16000/269521.pdf>).

If you have questions about reporting requirements, please call the WTRS Help Desk at 416-235-6322 (toll free: 1-877-344-2011) or by email, WTRSHelpdesk@ontario.ca. It is preferred that you submit your data directly and electronically to the WTRS. Where this is impracticable, please contact the WTRS Help Desk to arrange for written submission of your data.

Take notice that in issuing this Permit, terms and conditions pertaining to the taking of water and to the results of the taking have been imposed. The terms and conditions have been designed to allow for the development of water resources, while providing reasonable protection to existing water uses and users.

Yours truly,

A handwritten signature in dark ink, appearing to read "Victor Castro", written over a horizontal line.

Victor Castro
Supervisor Water Resources Unit
Eastern Region

File Storage Number: SI NO 8612 220 (TS)

AMENDED PERMIT TO TAKE WATER

Ground Water
NUMBER 8612-BNENBH

Pursuant to Section 34.1 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

The Corporation of the Township of Cramahe
1 Toronto St
Cramahe, Ontario, K0K 1S0
Canada

For the water Well #1A
taking from: Well #2

Located at: Lot 30, Concession 2, Geographic Township of Cramahe
Cramahe, County of Northumberland

For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:

DEFINITIONS

- (a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34.1, OWRA.
- (b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.
- (c) "Ministry" means Ontario Ministry of the Environment, Conservation and Parks.
- (d) "District Office" means the Peterborough District Office.
- (e) "Permit" means this Permit to Take Water No. 8612-BNENBH including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.
- (f) "Permit Holder" means The Corporation of the Township of Cramahe.
- (g) "OWRA " means the *Ontario Water Resources Act*, R.S.O. 1990, c. O. 40, as amended.

You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. Compliance with Permit

- 1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated December 20, 2019 and signed by Jeff Hoskin, and all Schedules included in this Permit.
- 1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.
- 1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.
- 1.4 This Permit is not transferable to another person.
- 1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.
- 1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.
- 1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

- 2.1 Inspections
The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act*, R.S.O. 1990, the *Pesticides Act*, R.S.O. 1990, or the *Safe Drinking Water Act*, S. O. 2002.
- 2.2 Other Approvals
The issuance of, and compliance with this Permit, does not:
 - (a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act*, and

the *Environmental Protection Act* , and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information

The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

(a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action

The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability

The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

2.6 Conflicts

Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

3. Water Takings Authorized by This Permit

3.1 Expiry

This Permit expires on **April 6, 2030**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted

The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Well #1A	Well Drilled	Municipal	Water Supply	2,280	24	3,283,200	365	18 268538 4878561
2	Well #2	Well Drilled	Municipal	Water Supply	2,280	24	3,283,200	365	18 268500 4878530
						Total Taking:	6,566,400		

4. Monitoring

- 4.1 The Permit Holder shall maintain a record of all water takings. This record shall include the dates and times of water takings, and the total measured amounts of water taken per day for each day that water is taken under the authorization of this Permit. A separate record shall be maintained for each source. The Permit Holder shall keep all required records up to date and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request.
- 4.2 The total amounts of water taken shall be measured using a calibrated flow meter and totalizer.

5. Impacts of the Water Taking

5.1 Notification

The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Groundwater Takings

If the taking of water is observed to cause any negative impact to other water supplies obtained from any adequate sources that were in use prior to initial issuance of a Permit for this water taking, the Permit Holder shall take such action necessary to make available to those affected, a supply of water equivalent in quantity and quality to their normal takings, or shall compensate such persons for their reasonable costs of so doing, or shall reduce the rate and amount of taking to prevent or alleviate the observed negative impact. Pending permanent restoration of the affected supplies, the Permit Holder shall provide, to those affected, temporary water supplies adequate to meet their normal requirements, or shall compensate such persons for their reasonable costs of doing so.

If permanent interference is caused by the water taking, the Permit Holder shall restore the water supplies of those permanently affected.

6. Director May Amend Permit

The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act* , Section 100 (4).

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.
2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.
3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written notice served upon me, the Environmental Review Tribunal and the Minister of the Environment, Conservation and Parks, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Minister of the Environment, Conservation and Parks will place notice of your appeal on the Environmental Registry. Section 101 of the Ontario Water Resources Act, as amended provides that the Notice requiring a hearing shall state:

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

- a. The name of the appellant;
- b. The address of the appellant;
- c. The Permit to Take Water number;
- d. The date of the Permit to Take Water;
- e. The name of the Director;
- f. The municipality within which the works are located;

This notice must be served upon:

*The Secretary
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto ON
M5G 1E5
Fax: (416) 326-5370
Email:
ERTTribunalsecretary@ontario.ca*

AND

*The Minister of the Environment,
Conservation and Parks
777 Bay Street, 5th Floor
Toronto, Ontario
M7J 2J3*

AND

*The Director, Section 34.1,
Ministry of the Environment,
Conservation and Parks
1259 Gardiners Rd, PO Box
22032
Kingston, ON
K7P 3J6*

Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:

by Telephone at
(416) 212-6349

Toll Free 1(866) 448-2248

by Fax at

(416) 326-5370

Toll Free 1(844) 213-3474

by e-mail at

www.ert.gov.on.ca

*This instrument is subject to Section 38 of the **Environmental Bill of Rights** that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek to appeal for 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry, you can determine when the leave to appeal period ends.*

This Permit cancels and replaces Permit Number 2363-8VMR6M, issued on 2012/07/06.

Dated at Kingston this 11th day of April, 2020.

A handwritten signature in dark ink, appearing to read "Victor Castro". The signature is fluid and cursive, with a long horizontal stroke at the end.

Victor Castro
Director, Section 34.1
Ontario Water Resources Act , R.S.O. 1990

Schedule A

This Schedule “A” forms part of Permit To Take Water 8612-BNENBH, dated April 11, 2020.



APPENDIX D

2022 Annual Water Quality Report

PROFESSIONAL SERVICES TO OPERATE THE COLBORNE WATER DISTRIBUTION AND SUPPLY SYSTEMS

2022 ANNUAL WATER QUALITY REPORT



RECORD OF ISSUES AND REVISIONS				
R	DATE	DESCRIPTION	PREPARED & VERIFIED	APPROVED
0A	2023-02-22		S. CHONG	M. RIZZO
1	2023-02-28	Added % rated capacity chart	S. CHONG	M. RIZZO

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DEFINITIONS

“Colborne DWS” refers to the Colborne Drinking Water System;

“Aquatech Canadian Water Services Inc. (ACWS)” refers to the Colborne DWS operation authority for the Township of Cramahe;

“2022 reporting period” refers to January 1st, 2022 to December 31st, 2022;

“Large municipal residential system” is a municipal drinking water system that serves a major residential development and serves more than 100 private residences;

“O.Reg 170/03” refers to the Ontario Regulation 170/03 made under the Safe Drinking Water Act 2002 for Drinking Water Systems

“Permit to take Water No. 8612-BNENBH (PTTW)” refers to the permit to take water given by the Ontario Water Resources Act, R.S.O. 1990 (OWRA) to the Township of Cramahe (Owner of the Colborne DWS);

“Ontario Municipal Water Licence No. 138-101” refers to the permit given to ACWS to operate the Colborne DWS;

“Sampling and testing requirements for large municipal residential systems” refers to schedule 1, 6, 7, 10, 13, 15.1, 16, 17, 22, 23 and 24 of the O.Reg. 170/03;

“MECP” refers to the Ministry of the Environment and Conservation and Parks;

“O.Reg 319/08” refers to the Ontario Regulation 319/08 for Small Drinking Water Systems

1.0 PURPOSE

1.1 SCOPE

Aquatech Canadian Water Services Inc. (ACWS) is mandated by the Township of Cramahe to take charge of the operation of the Colborne Water Supply and Distribution System (including the Castleton Public Library) for a 5 year period.

The purpose of this Annual Water Quality Report is to provide information about the Colborne DWS operations and performance during the period of January 1st 2022 to December 31st 2022, to residents and stakeholders of the Township of Cramahe. Highlights of this report contain summaries of plant operations, maintenance, sampling activities and compliance with Ontario regulatory requirements.

The Annual Water Quality Report satisfies the regulatory requirements of the Safe Drinking Water Act 2002, including the Drinking Water Quality Management Standard (DWQMS) reports to the owner, and regulatory requirements described in Section 11 and Schedule 22 of the Ontario Regulation 170/03 (O.Reg 170/03).

The Annual Water Quality Report is prepared by ACWS (operating authority) on behalf of the Township of Cramahe.

1.2 AVAILABILITY

ANNUAL WATER QUALITY REPORT

In compliance with O.Reg 170/03, a copy of the Annual Water Quality Report is to be provided no later than February 28, 2023 to:

- Drinking Water System Owners (Township of Cramahe Mayor and Council)
- Operating Authority Top Management (ACWS)
- The Public

The Colborne DWS is a large municipal residential system that serves approximately 1088 metered dwellings. Copies of this annual report are available online at <https://www.cramahe.ca/en/living-in-our-community/utilities.aspx>. Hard copies are also available upon request at ACWS's office at 2 Church Street, Colborne, ON, K0K 1S0.

SUMMARY REPORT

In compliance with schedule 22 of O.Reg 170/03, a copy of the summary report is to be provided no later than March 31, 2023 to the municipal council of the Township of Cramahe. The Township of Cramahe must provide ACWS with a copy of the council resolution indicating the report has been accepted.

2.0 DESCRIPTION OF DRINKING WATER SYSTEM

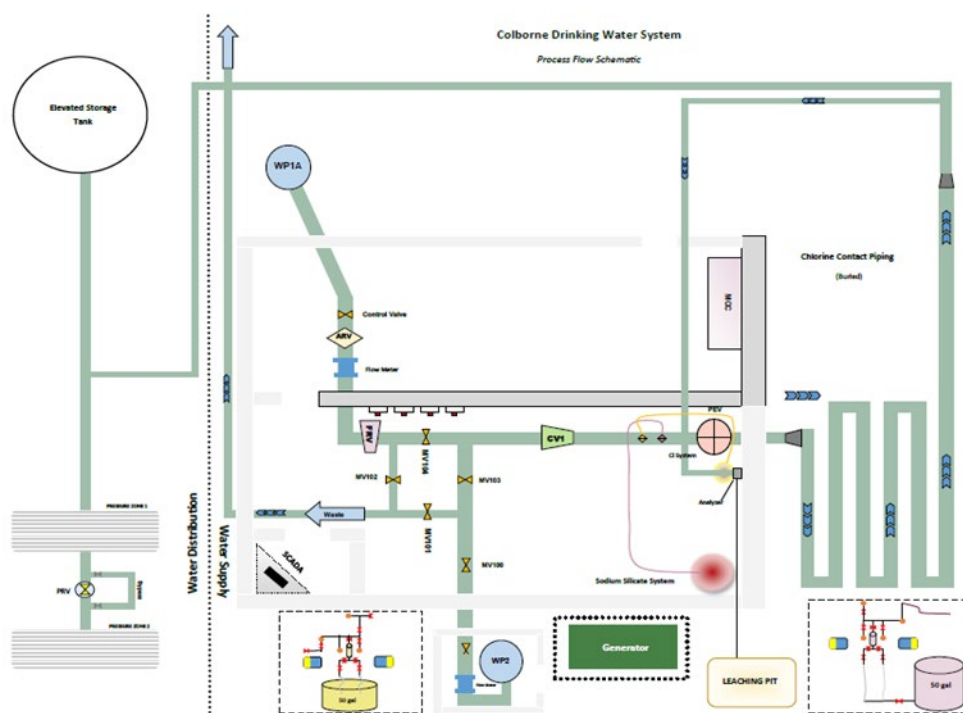
2.1 WATER SYSTEM

The Colborne DWS consists of two onsite groundwater wells (Well 1A and Well 2), two pump houses with one water treatment facility (Class 3), one storage reservoir, and approximately 27 km of distribution mains. The water usage at the Colborne DWS is considered a large municipal residential system used for domestic purposes and rated to maximum daily flow of 3,283 m³.

The Colborne Water Treatment Plant (Colborne WTP) is located at 321 Purdy Road, Colborne, ON. The water supply for the Colborne is obtained from Well 1A and Well 2 on a rotating cycle. Sodium hypochlorite is injected for primary disinfection and sodium silicate is added to sequester iron in the system. Primary disinfection is achieved then through the 215m chlorine contact pipe (buried east of the WTP).

As seen in figure 1, the distribution system consists of two pressure zones regulated by two pressure reducing valves that maintain pressure ranging 20-90 PSI, the 2,342 m³ water storage tank (located north of Hwy 401), 27 km of watermains and 140 fire hydrants. After meeting the required contact time for primary disinfection, the treated water reaches the distribution system and the water storage tank. Water is then conveyed to each dwelling by the watermains. As of December 31, 2022, there was a total of 1088 metered residents.

Figure 1. Colborne Drinking Water System



(Source: Drinking Water Works Permit No. 138-201, Issue 4)

3.0 COMPLIANCE 2022

3.1 APPLICABLE LEGISLATIONS, LICENSE & PERMIT

During the 2022 reporting period, the Colborne DWS (Class 3 WDS) and Castleton Public Library has been operated by ACWS in accordance with O.Reg 170/03 and O.Reg 319/08, Permit to Take Water No. 8612-BNENBH (PTTW), Drinking Water Works Permit 138-201 and Ontario Municipal Water Licence No. 138-101.

The permit allows water taking from well #1A and well #2 the maximum rated capacity shall not exceed 3283 m per day, per well.

3.2 ADVERSE TEST RESULTS

During the 2022 reporting period, ACWS did not record any adverse water quality incidents described in Schedule 16 of O.Reg 170/03 and O.Reg 319/08.

4.0 SAMPLING AND TESTING

4.1 MICROBIOLOGICAL TESTING

As presented in table 1, the Colborne DWS complies with all the sampling and testing requirements for large municipal residential systems as prescribed in section 4 of O.Reg 107/03. Table 2, the Castleton Public Library complies with all the sampling and testing requirements for small drinking water systems as prescribed in section 25 of O.Reg 319/08

Table 1 summarizes microbiological testing done by ACWS during the 2022 reporting period under schedule 10 of O.Reg 170/03. ACWS did not record any adverse quality results because of a microbiological parameter exceeding its respective maximum acceptable concentration.

Table 2 summarizes microbiological testing done by ACWS during the 2022 reporting period under O.Reg 319/08

Table 1. Colborne DWS Microbiological Analysis

	E.Coli, (cfu/100 mL)		Total Coliform, (cfu/100 mL)		HPC, (cfu/ 1mL)	
	# of Samples	Range of Results (min #-max#)	# of Samples	Range of Results (min #-max#)	# of Samples	Range of Results (min #-max#)
Raw	103	0	101	0	0	N/A
Treated	52	0	52	0	52	0-5
Distribution	156	0	156	0	148	0-1

Table 2. Castleton Public Library Microbiological Analysis

	E.Coli, (cfu/100 mL)		Total Coliform, (cfu/100 mL)		HPC, (cfu/ 1mL)	
	# of Samples	Range of Results (min #-max#)	# of Samples	Range of Results (min #-max#)	# of Samples	Range of Results (min #-max#)
Raw	7	0	7	0	0	N/A
Treated/Distribution	22	0	22	0	22	0-13

4.2 OPERATIONAL TESTING

Table 3 summarizes operational testing done by ACWS during the 2022 period of operation under schedule 7 and 8 of O.Reg 170/03 and O.Reg 319/08. ACWS did not record any adverse quality results because of an operational parameter exceeding its respective maximum acceptable value.

Table 3. Colborne DWS and Castleton Public Library Water System Operational Monitoring

	Number of Grab Samples	Range of Results (min #-max #)
Turbidity, Raw Water (NTU)	31	0.2-2.4
Turbidity, Treated Water (NTU)	12	0.1-0.4
Turbidity, Distribution Water (NTU)	150	0.1-0.7
Treated Water Free Chlorine Residual (mg/L)	8760 (Continuous monitoring)	0.6-2.5

4.3 CHEMICAL TESTING

During the 2022 period of operation, sampling and testing for chemicals, inorganic and organic parameters were not required as prescribed by section 13.2 (b) of O.Reg 170/03. A summary of the 2020 chemical, inorganic, and organic sampling and testing results performed by the previous operating authority (Lakefront Utilities Services Inc) is presented in table 3 and 4.

Table 3. Colborne DWS Inorganic Analysis

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	EXCEEDANCE
Antimony	January 13, 2020	6	ug/L	Not Applicable
Arsenic		10	ug/L	Not Applicable
Barium		1000	ug/L	Not Applicable
Boron		5000	ug/L	Not Applicable
Cadmium		5	ug/L	Not Applicable
Chromium		50	ug/L	Not Applicable
Mercury		1	ug/L	Not Applicable
Selenium		50	ug/L	Not Applicable
Uranium		20	ug/L	Not Applicable
Sodium		20	ug/L	Not Applicable
Fluoride		1.5	ug/L	Not Applicable

Table 4. Colborne DWS organics

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	EXCEEDANCE
Alachlor	January 13, 2020	5	ug/L	Not Applicable
Atrazine + N-dealkylated metabolites		5	ug/L	Not Applicable
Benzene		1	ug/L	Not Applicable
2-Dichlorobenzene		200	ug/L	Not Applicable
4-Dichlorobenzene		5	ug/L	Not Applicable
1-Dichloroethylene (vinylidene chloride)		14	ug/L	Not Applicable
Dichloromethane		50	ug/L	Not Applicable
Monochlorobenzene		80	ug/L	Not Applicable
Tetrachloroethylene (perchloroethylene)		10	ug/L	Not Applicable
Trichloroethylene		5	ug/L	Not Applicable
Vinyl Chloride		1	ug/L	Not Applicable
Diquat		70	ug/L	Not Applicable
Paraquat		10	ug/L	Not Applicable
Glyphosate		280	ug/L	Not Applicable

Polychlorinated Biphenyls		3	ug/L	Not Applicable
Benzo(a)pyrene		0.01	ug/L	Not Applicable

4.4 NITRATES & NITRITES TESTING

During the 2022 period of operation, sampling and testing for nitrates and nitrites testing was required as prescribed by section 13(6) of schedule 13 of O.Reg 170/03 and section 20(6) of O.Reg 319/08.

Table 5. Colborne Nitrates & Nitrites

PARAMETER	SAMPLE DATES	RESULT VALUE	UNIT OF MEASURE	EXCEEDANCE
Nitrite		All Water Supply: <0.10	mg/L	N/A
Nitrate	Mar 21 June 6 Sept 6 Dec 13	Raw Water: 0.31-2.84 Treated : 0.58-1.35 Distribution: 0.55-2.77	mg/L	N/A

Table 6. Castleton Nitrates & Nitrites

PARAMETER	SAMPLE DATES	RESULT VALUE	UNIT OF MEASURE	EXCEEDANCE
Nitrite	June 6 Sept 6 Dec 13	All Water Supply: <0.10	mg/L	N/A
Nitrate		Raw Water: 3.76 Distribution: 3.85-4.17	mg/L	N/A

4.5 LEAD TESTING

During the 2022 period of operation, sampling and testing for lead was not required as prescribed by section 4 (2) of schedule 15.1 of O.Reg 170/03 and section 20(7) of O.Reg 319/08 because of an exemption made by the MECP. Nevertheless, ACWS performed a supplementary sampling and testing as shown in table 7 and table 8:

Table 7. Colborne DWS Lead Testing

LEAD				
	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	EXCEEDANCE
RAW	July 21, 2022	<0.001	mg/L	N/A
TREATED		<0.001	mg/L	N/A
DISTRIBUTION		<0.001	mg/L	N/A

Table 8. Castleton Library Lead Testing

LEAD				
	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	EXCEEDANCE
TREATED	June 21, 2022	<0.001	mg/L	N/A

4.6 TRIHALOMETHANES AND HALOACETIC ACID TESTING

During the 2022 period of operation, sampling and testing for trihalomethanes and haloacetic acid testing was required as prescribed by section 13(6) of O.Reg 170/03. Sampling and testing for THM and HAA is summarised in table 9 and table 10:

Table 9. Colborne THM Testing

PARAMETER	SAMPLE DATES	RESULT VALUE	UNIT OF MEASURE	EXCEEDANCE
Dibromochloromethane	April 5 July 5 Sept 6 Dec 13	Treated: <1.5 Distribution: 0.34-3.9	%	Not Applicable
Bromodichloromethane		Treated: 0.16-0.5 Distribution: 0.14-1.7	ug/L	Not Applicable
Bromoform		Treated: <0.4 Distribution: <0.4	ug/L	Not Applicable
Chloroform		Treated: <0.5 Distribution: 0.21-2.7	ug/L	Not Applicable
Toluene-d8		Treated: 85-101 Distribution: 86-99	ug/L	Not Applicable
Trihalomethanes		Treated: <1.5 Distribution: 3.9-5.3	ug/L	Not Applicable

Table 10. Colborne HAA Testing

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	EXCEEDANCE
Mono Bromoacetic Acid	Apr 5 July 5 Sept 6 Dec 13	Treated: <2.0 Distribution: <2.0	ug/L	Not Applicable
Mono Chloroacetic Acid		Treated: <2.0 Distribution: <2.0	ug/L	Not Applicable
Dibromoacetic Acid		Treated: <2.0 Distribution: <2.0	ug/L	Not Applicable
Dichloroacetic Acid		Treated: <2.5 Distribution: <3.3	ug/L	Not Applicable
Total Haloacetic Acids		Treated: <2.5 Distribution: <3.3	ug/L	Not Applicable
Trichloroacetic Acid		Treated: <2.0 Distribution: <2.0	ug/L	Not Applicable

5.0 SUMMARY OF FLOW QUANTITIES & FLOW RATE CAPACITY

The total quantities of water taken and discharged from the WTP is illustrated in Figure 2. During the 2022 reporting period, ACWS did not record any incidents related to surpassing the maximum volume of water permitted to take. A percentage representative of the maximum daily discharge is shown in Figure 3 of the maximum daily discharge observed in Table 11.

Figure 2. Colborne DWS Flow Quantities

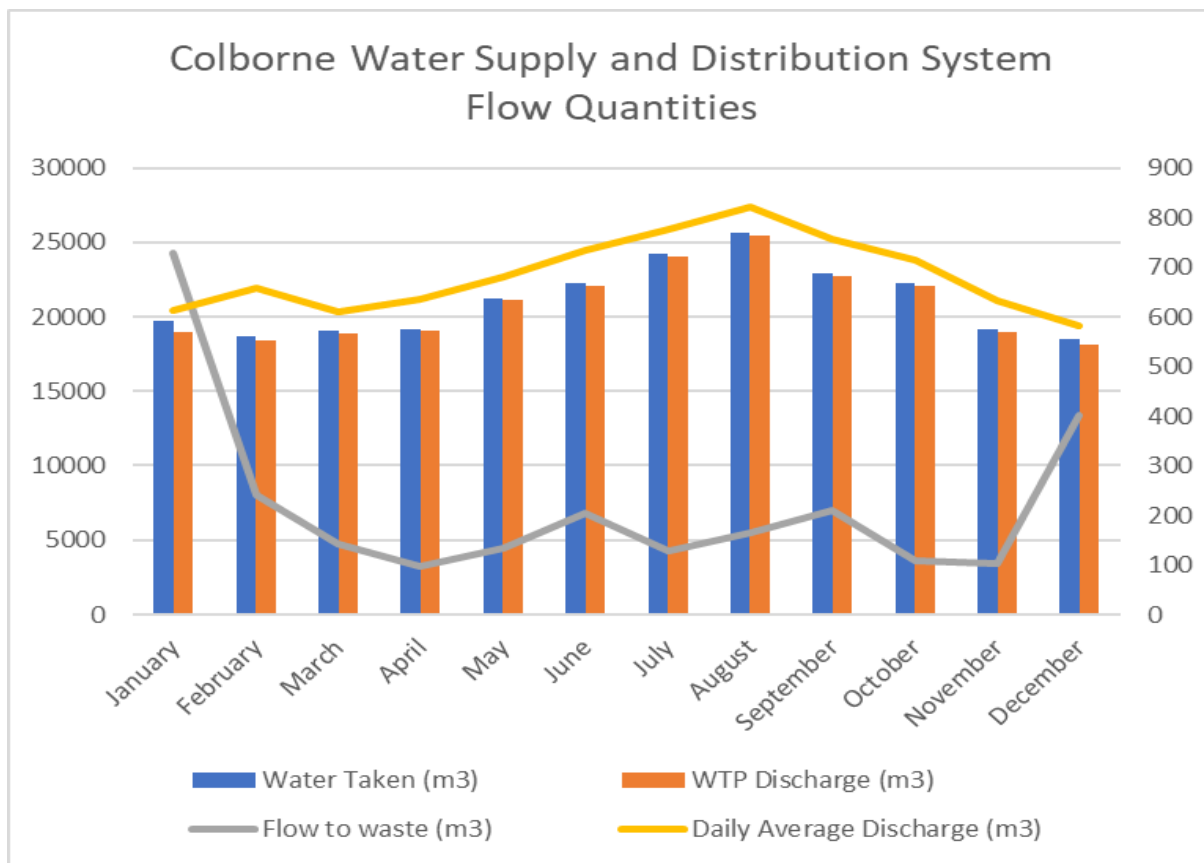
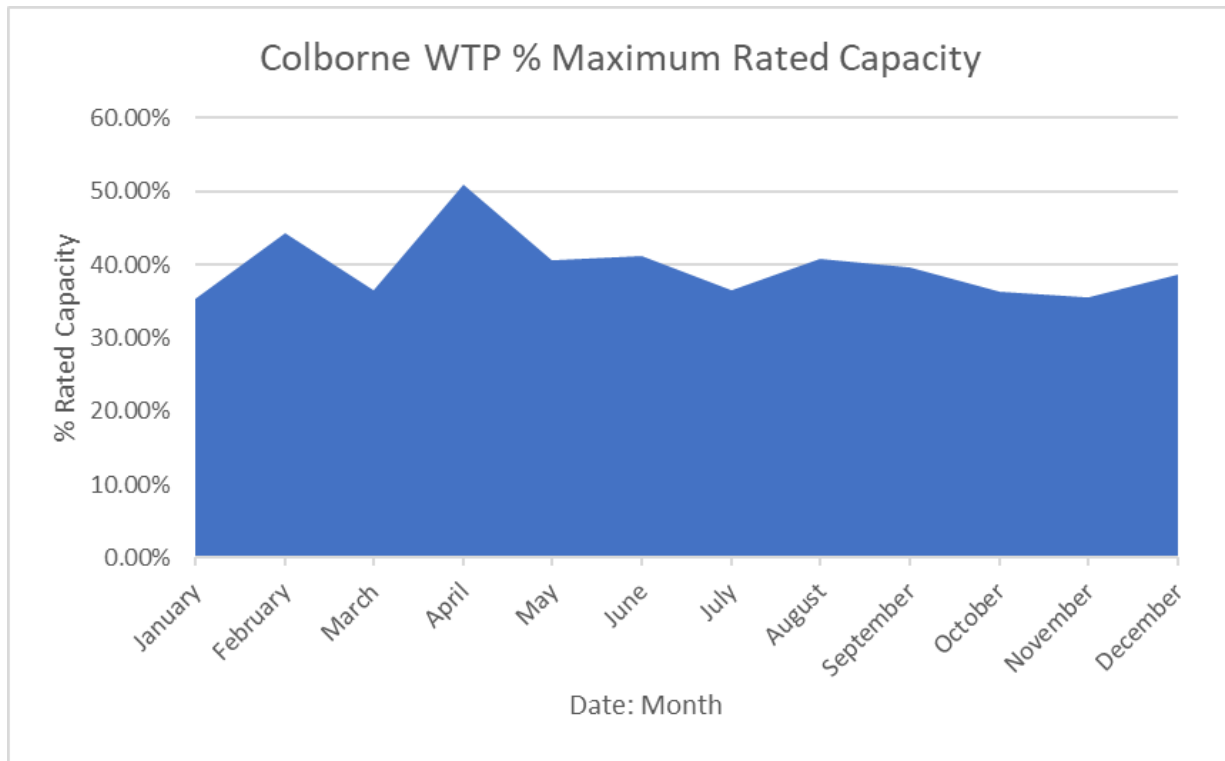


Table 11. Colborne DWS 2022 Flow Quantities

	January	February	March	April	May	June	July	August	September	October	November	December
Water Taken (m3)	19710	18637	19038	19178	21237	22243	24203	25615	22934	22218	19107	18474
WTP Discharge (m3)	18982	18395	18895	19082	21103	22038	24074	25452	22724	22110	19005	18073
Flow to waste (m3)	727	242	143	97	134	205	128	163	210	108	102	400
Daily Average Discharge (m3)	612	657	610	636	681	735	777	821	757	713	634	583
Maximum Daily Discharge (m3)	1162	1456	1196	1673	1332	1351	1198	1336	1301	1192	1167	1270

Figure 3. Colborne DWS % Maximum Rated Capacity



6.0 CORRECTIVE ACTIONS

During the reporting period, ACWS did not need to perform any corrective actions as described in Schedule 17 and 18 of O.Reg 170/03, O.Reg 319/08.

7.0 CONTINUAL IMPROVEMENT

To ensure safe and efficient operations of the Colborne DWS during the 2022 reporting period, ACWS performed the necessary inspections, repairs, replacements, and installations to improve the quality of all water processes. Table 10 summarizes the major expenses which occurred during the 2022 reporting period.

Table 10. Major Expenses

SYSTEM	ITEM DESCRIPTION	COST
Colborne Water Supply System	Back Flow Prevention test and certify	\$920.95
	Repair power supply and replaced UPS at water tower	\$2,621.41
	Installation of temperature sensors and smoke detectors	\$3,616.00
	Installation of 240V/30 amp receptacle and plug in construction heater for Well 2 shack	\$908.25
	Epoxy coating for Hypochlorite and Sodium Silicate containment area	\$8,033.30
	Pipework replacement	\$2,035.75
	Second Sodium silicate pump	\$3,586.00

	Exterior tank inspection and cathodic protection testing	\$2,446.90
	Annual generator inspection and maintenance as per CSA C282:19	\$2,431.82



Aquatech Canadian Water Services Inc. is a subsidiary of HELIOS WATER SERVICES Inc.



APPENDIX E

2022 MECP Drinking Water Inspection Report

**Ministry of the
Environment,
Conservation and Parks**
Eastern Region
Peterborough District Office
300 Water Street
2nd Floor, South Tower
Peterborough ON K9J 3C7
Phone: 705.755.4300
or 800.558.0595

**Ministère de l'Environnement,
de la Protection de la nature
et des Parcs**
Région de l'Est
Bureau du district de Peterborough
300, rue Water
2^e étage, Tour Sud
Peterborough (Ontario) K9J 3C7
Tél: 705 755-4300
558-0595230,



June 15, 2022

Mr. Mark MacDonald
Chief Administrative Officer (A)
The Corporation of the Township of Cramahe
1 Ontario Road,
Colborne, ON K0K 1S0

Dear Mr. MacDonald,

Re: Compliance Inspection Report for the Colborne Drinking Water System

The enclosed report documents findings of the inspection that was performed at the Colborne Drinking Water System on May 4, 2022.

“Non-Compliances”, are found on page 3 of the report, are linked to incidents of non-compliance with regulatory requirements contained within an Act, a Regulation, or site-specific approvals, licenses, permits, orders, or instructions. Such violations could result in the issuance of mandatory abatement instruments including Orders, tickets, penalties, or referrals to the ministry’s Investigations and Enforcement Branch. Please note that the required actions may contain required dates for completion.

“Recommended Actions”, as Other Inspection Findings are found also on page 3 of the report, convey information that the owner or operating authority should consider implementing in order to advance efforts already in place to address such issues as emergency preparedness, the fulsome availability of information to consumers, and conformance with existing and emerging industry standards. Please note that items which appear as recommended actions do not, in themselves, constitute violations.

“Please note that due to a change in IT systems, the Inspection Rating Report (IRR) cannot be generated at the same time as the inspection report. The IRR will be sent separately and prior to any public release (typically within 1-2 month of the completion of the inspection)”.

Thank you for the assistance afforded to me during the conduct of the compliance assessment.

Should you have any questions regarding the content of the enclosed report please do not hesitate to contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "Paul Millar".

Paul Millar
Water Inspector
(613) 827-2531
Fax: (613) 962-6809
E-mail: paul.millar@ontario.ca

Enclosure (1)

SI NO CR CO ON 540 (2022/23)

c:

Mr. Ronnie Flannery, Operating Authority, Aquatech Canada – Manager

Dr. Natalie Bocking, Medical Officer of Health, Haliburton, Kawartha, Pine Ridge District
Health Unit

Ms. Rhonda Bateman, CAO/Treasurer, Lower Trent Conservation Authority, 714 Murray Street,
RR1, Trenton, ON K8V 5P4

Ms. Jacqueline Fuller, Water Supervisor, Ministry of Environment, Conservation & Parks,
Peterborough



COLBORNE DRINKING WATER SYSTEM
321 PURDY RD, CRAMAHE, ON, K0K 1S0
Inspection Report

System Number: 220000790
Entity: THE CORPORATION OF THE
TOWNSHIP OF CRAMAHE
Inspection Start Date: 05/04/2022
Inspection End Date: 06/15/2022
Inspected By: Paul Millar
Badge #: 1130

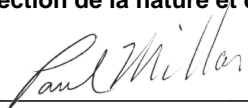

(signature)

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1. Drinking Water System Inspection Report

Appendix:

A. Stakeholders Appendix

NON-COMPLIANCE/NON-CONFORMANCE ITEMS

The following item(s) have been identified as non-compliance/non-conformance, based on a "No" response captured for a legislative or best management practice (BMP) question (s), respectively.

Question Group: Certification and Training

Question ID	MRDW1073000	Question Type	Legislative
Question: Has the overall responsible operator been designated for all subsystems which comprise the drinking water system?			
Legislative Requirement	SDWA O. Reg. 128/04 23 (1);		
Observation/Corrective Action(s)			
<p>The overall responsible operator had not been designated for each subsystem. The Colborne DWS has been categorized as a Class III - Water Distribution & Supply Subsystem, certificate #3006.</p> <p>It is important to note that the Colborne drinking water system (DWS) has been operated by two (2) Operating Authorities over this inspection period under review. For the months of June & July of 2021, Lakefront Utilities Systems Inc. (LUSI) operated the Works, and the period subsequent to that and ongoing, the Works is being operated by Aquatech Canada Water Systems (ACWS).</p> <p>The Overall Responsible Operator (ORO) for the Colborne DWS during the period when Lakefront Utility Systems was the acting Operating Authority has been identified as Mr. Larry Spyrka. It is acknowledged that he possesses a Class III certificate in Water Distribution & Supply Subsystems, certificate #96986, expiry May 31, 2023.</p> <p>The Overall Responsible Operator (ORO) for the Colborne DWS on behalf of Aquatech Canada, from August 2021 forward, has been identified as Mr. Brian Springer. Mr. Springer has been confirmed to hold a valid Water Distribution & Supply Subsystem, Class IV operator's license, certificate # 10629, with an expiry date of June 30, 2023.</p> <p>During the field inspection it was reported by Mr. Springer had travelled outside the Province of Ontario on business for Aquatech Canada for the period between November 15 - December 21, 2021. Unfortunately, the Owner & Aquatech Canada management failed to designate another as the Overall Responsible Operator during Mr. Springer's time away.</p> <p>For information purposes an ORO may not be out of province or country and able to provide direction only by electronic means. The expectation is that the ORO be in close</p>			

proximity to the site and able to attend in person to effectively address an emergency situation.

Immediately is typically interpreted as "without delay".

Section 23(4) of O. Reg. 128/04 states in part:

(4) If the overall responsible operator designated under subsection (1) or (2) is absent or unable to act, the owner or operating authority or, if the owner or operating authority authorizes it, the overall responsible operator may designate an operator who holds a certificate that is applicable to that type of subsystem and, if applicable, that is not more than one class lower than the class of the subsystem to act in the place of the overall responsible operator (emphasis added).

An emergency situation may require the ORO to be physically present to take effective action. As such, it is imperative for an ORO to be able to quickly attend site and able to take physical action when required.

By no later than June 30, 2022, provide to the attention of the author of this report a written understanding that outlines who can be designated as the Overall Responsible Operator when the primary designate is absent or unable to act. Also, provide a list of back-up ORO's the Aquatech Canada will utilize should the need present itself in the future.

Question Group: Operations Manuals

Question ID	MRDW1060000	Question Type	Legislative
Question: Do the operations and maintenance manuals meet the requirements of the DWWP and MDWL issued under Part V of the SDWA?			
Legislative Requirement	SDWA 31 (1);		
Observation/Corrective Action(s) The operations and maintenance manuals did not meet the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence issued under Part V of the SDWA. During the field inspection the Operations & Maintenance (O/M) Manual was requested however the Operating Authority did not have an assembled version onsite for review but indicated that many of the necessary components of the O/M Manual could be found			

either within the documentation provided, or on their computer but was not produced for review at that time.

Please note that an O/M Manual is not a series of separate documents, but rather a concise compilation of pertinent legislation, control documents/approvals, procedures for the safe and effective operations & maintenance of the works, plans, drawings, and process description to be readily available for all staff.

A thorough review of the documentation provided did not reveal an O/M Manual but rather an outdated copy of the facilities Municipal Drinking Water License (MDWL-Issue 3) and Drinking Water Permit (DWWP-Issue 2), although the current Permit To Take Water #8612-BNENBH, was provided. Additionally, records could not be located to support that documentation was available as it relates to Municipal License 138-101 (Issue 4), Sch. B, Section 16.0, entitled "Operations & Maintenance Manual", Conditions 16.2.3-16.2.10, as well as 16.3.

Please note that Municipal License 138-101, Sch. B, Condition 16.1, obligates the Works Owner & Operating Authority to have an "up to date" copy of the operations and Maintenance Manual, as per Condition 16.1, which states;

16.1 An "up-to-date" operations and maintenance manual or manuals shall be maintained and applicable parts of the manual or manuals shall be made available for reference by all persons responsible for all or part of the operation or maintenance of the drinking water system.

In addition, according to O.Reg. 128/04, Section 28, states;

Operations and maintenance manuals

28. The owner or operating authority of a subsystem shall ensure that operators and maintenance personnel in the subsystem have ready access to the comprehensive operations and maintenance manuals that contain plans, drawings and process descriptions sufficient for the safe and efficient operation of the subsystem. O. Reg. 128/04, s. 28.

A consolidated O/M Manual was provided on May 20/22, post the field inspection that did include a copy of the MDWL & DWWP, however (as noted) the Municipal License (Issue #3) & the DWWP (Issue #2) have since been revised with an Issue #4 and Issue #3, respectively.

Of note, following the field inspection the O/A asserts that the components of the O/M Manual were all available electronically during the field inspection, although they were not produced at the time of the inspection upon request aside from the ML/DWWP. In fact during a conversation held with Mr. Springer - ORO on May 26/22, it was reported that the consolidated O/M Manual was created after the field inspection.

In addition, no plans were identified within the electronic O/M Manual, but an outdated Process & Flow Diagram (PFD) was available within the Municipal License, however it incorrectly identifies Well #1, which has been abandoned, with Well 1A now being identified as one of the two (2) available production wells, (i.e.: Wells 1A & 2) for the Works.

By no later than June 30, 2022, provide to the attention & satisfaction of the Provincial Officer & author of this report a copy of an up to date Operations & Maintenance Manual that satisfies the requirements outlined in the facilities Municipal License, to include copies of the current Municipal License and Drinking Water Works Permit, as well as a current PFD, that includes reference to Well 1A and not Well 1.

Question Group: Other Inspection Findings

Question ID	MRDW1115000	Question Type	Legislative
Question: In the event that an issue of non-compliance outside the scope of this inspection protocol is identified, a "No" response may be used if further actions are deemed necessary (and approved by the DW Supervisor) to facilitate compliance.			
Legislative Requirement		Not Applicable	
Observation/Corrective Action(s)			
The following instance(s) of non-compliance were also noted during the inspection: Records provided indicate that an updated drinking water system (DWS) profile was provided to the Ministry on August 10, 2021, however, it is understood that the new Operating Authority assumed their control of the DWS on August 1, 2021. According to Municipal License 138-101, Sch. B, Condition 11, Section 11.2, the Owner is to notify the Director at least "30 days" prior to a new Owner of Operating Authority taking over, as per the following: 11.0 Change of Owner or Operating Authority 11.2 The owner shall notify the Director in writing at least 30 days prior to a change of any operating authority identified in Schedule A of this licence. No further actions required in this case, however the Owner (O/A) are reminded to ensure that they submit documentation as outlined in legislation or control documents to avoid potential violations and any consequences that may accompany them.			

Question ID	MRDW1116000	Question Type	BMP
Question: Were the inspection questions sufficient to address other identified best practice issues?			
Legislative Requirement	Not Applicable		
Observation/Corrective Action(s)			
<p>The following issues were also noted during the inspection:</p> <p>It is strongly recommended that the Operating Authority in consultation with the Works Owner (where applicable) consider the following for implementation;</p> <p>1.) During the review of data it was noticed that there was a fair amount of misinformation provided in the overall submissions. It is extremely important that all data provided to the Ministry during compliance inspections be "proofed" prior to submission to ensure that any data sets that may fall outside of a compliance parameter or regulator requirements are qualified to include details to either discount the event/s, or outline the issue for full disclosure purposes. For example, multiple raw water flow data rates exceeded the PTTW instantaneous flow rate limit, without any details to advise the Inspector of such things as the duration of the event or if there were extraneous circumstances that caused the event, these on the surface then would be considered violations. Similarly, several primary disinfection chlorine residual values <0.45 ppm were identified, but without any details to qualify this data, could result in violations being cited due to inadequacies of primary disinfection &/or failing to report as "Other Observations".</p> <p>It is recommended that the Works Owner/Operating Authority review the newly created Anomalous data sheet and ensure that it accompanies inspection data provided to speak to any events that fall outside of compliance. These sheets should include (but not limited to), the duration of the event, cause, corrective actions, actual variable (max/min or min) vs misinformation, and date, time of the occurrence, as well as if a call-in was associated with corrective actions or a response, etc, etc.</p> <p>2.) It is recommended that a document be drafted and affixed to the front cover of the active log book/s, to include a statement by the DWS owner, that identifies who is to assume the ORO/OIC positions, their alternate, and any other persons that the Drinking water system or the Overall Responsible Operator shall designate as being authorized to make entries, all operator names/signatures, level of operator & plant certifications, certificate numbers and expiry dates.</p> <p>3.) It is recommended that the Owner/O/A confer with their Building/Plumbing Department in an effort to compile a comprehensive list of facilities that are equipped with backflow prevention devices, to include; type, size, make & model, as well as location, reasons for the installation of a backflow prevention device, i.e: threats identified.</p> <p>4.) It is recommended that the O/A draft & utilize a call-in log sheet for all after hours</p>			

operator responses to alarms or adverse conditions. The records should include the dates, times in/out, operator name & signature, alarms, corrective actions, persons notified (MOH, Owner, MECP, Mgmt, etc, etc).

5.) It is recommended that the O/M Manual also include copies of O.Reg. 170/03, O.Reg. 128/04, The Ministry's - Watermain Disinfection Procedure, a P.I.D., identification of where the "As Built" drawings can be located, identification of persons to be designated as the O. R.O. & O.I.C., all relevant Standard Operating Procedures (SOP), applicable Contingency Plans, to include a Contingency Plan for the reporting and actions required to address the potential of Spills. Please keep in mind that this is to be a "living document" and will require occasional revisions as changes to the staff, equipment or control documents occur.

Question Group: Reporting & Corrective Actions

Question ID	MRDW1113000	Question Type	Legislative
Question: Have all changes to the system registration information been provided to the Ministry within ten (10) days of the change?			
Legislative Requirement	SDWA O. Reg. 170/03 10.1 (3);		
Observation/Corrective Action(s) All changes to the system registration information were not provided within ten (10) days of the change. Prior to the physical inspection carried out on May 4, 2022, the author of this report reviewed the current drinking water system profile for Colborne to find out that it mistakenly identifies Mr. Arryn McNichol as Manager of Public Works, when in fact he was the Chief Administrative Officer/Treasurer, although, it was reported by Mr. Joynt that he had departed the Township of Cramahe, and now Mr. Mark MacDonald is identified as the (Acting) CAO for the Township. Additionally, Mr. David Macpherson, Manager of Public Works & Environmental Services has also left his capacity with the Township, and this position currently is vacant. Please be advised that according to O.Reg. 170/03, Section 10.1(3) states (in part) the following; 10.1 (3) If there is any change to the information given to the Director under subsection (1) or (2), the owner of the drinking water system shall give the Director written notice of the change within 10 days of the change. O. Reg. 247/06, s. 9.			

By no later than June 30, 2022 provide confirmation to the attention of the author of this report that the Colborne drinking water system profile has been suitably updated to reflect the above noted changes, along with any other pertinent details applicable.

Question Group: Source

Question ID	MRDW1009000	Question Type	Legislative
Question: Are measures in place to protect the groundwater and/or GUDI source in accordance with any MDWL and DWWP issued under Part V of the SDWA?			
Legislative Requirement	SDWA 31 (1);		
Observation/Corrective Action(s) Measures were not in place to protect the groundwater and/or GUDI source in accordance with any the Municipal Drinking Water Licence and Drinking Water Works Permit issued under Part V of the SDWA. Measures to protect the source water have been identified in Municipal License and Permit # 138-101/138-201, as well as Permit's To Take Water #8612-BNENBH. Each of the aforementioned documents prescribes limits as to the water treatment plant's rated capacity &/or the amounts of water that can be taken from either potential well source. Additionally, within Municipal License # 138-101, Schedule B, Section 16.0 - Operations & Maintenance Manual, Items; 16.2.8-16.2.10, inclusive, prescribes requirements regarding the wells, as per the following. 16.2.8 An inspection schedule for all wells associated with the drinking water system, including all production wells, standby wells, test wells and monitoring wells; 16.2.9 Well inspection and maintenance procedures that consider the entire well structure of each well including all above and below grade well components; and 16.2.10 Remedial action plans for situations where an inspection indicates noncompliance with respect to regulatory requirements and/or risk to raw well water quality. Records failed to be produced at the time of the field inspection to confirm that the above cited Municipal License conditions were in place on May 4/22. Subsequent to the field inspection on May 20/22, a document was provided to confirm the existence of an O/M Manual. Reportedly this document was available at the time of the field inspection but when requesting to view the O/M Manual when onsite it was not produced from computer			

memory at that time. Also, on May 26/22, the Ministry contacted the OIC-Colin MacDonald to make inquiry about the existence of an O/M Manual and he noted that to the best of his knowledge that one was available on the computer shared drives, although he had never seen or reviewed it.

It is of concern to the author of this report that staff are not reviewing the O/M Manual upon hire, as the importance of this document can not be understated, as it is to contain all MECP issued control documents (MDWL/DWWP/PTTW), as well as Contingency Plans, etc.

Since an O/M Manual has been made available, along with a hard copy reported to be available onsite, no further actions are required at this time.

Question Group: Treatment Processes

Question ID	MRDW1025000	Question Type	Legislative
Question: Were all parts of the drinking water system that came in contact with drinking water (added, modified, replaced or extended) disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?			
Legislative Requirement	SDWA 31 (1);		
Observation/Corrective Action(s) All parts of the drinking water system were not disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit. Records were requested to confirm the details associated with the inspection period watermain breaks. The water inspector requested the actual logbook records which were not provided and instead a pair of summary documents were. The summary documents had locations for the following; the date, location, operator, category, actions taken, pipe size, positive flows, contractors, scheduled (Y/N), air gap, contamination suspected (Y/N), free & total chlorine residuals, date returned to normal service & pipe materials. Please be advised that part of the requirements of O.Reg. 128 /04 and more relevantly the DWWP, Section 2.0 & the 2020-Watermain Disinfection Procedures document, Section 3.2, indicates that records shall be captured of the disinfectant residual following final post-repair flushing. If final disinfectant residual is less than 0.2 mg/L free chlorine in a chlorinated system, then provide the location and results of the upstream disinfectant residual(s) or documented benchmarks for the area. In addition, if applicable if microbiological samples were collected & submitted for analyses. According to the excel summary document, the operator failed to capture the disinfectant on Sept. 9, Oct. 13 & 28, Nov. 10 & 30 and Apr. 12/22, with the balance of the breaks (x4) stated the following;			

"matched residuals taken in the field this day, actual value not recorded".

The Operating Authority has recognized their oversight in this regard and advise that moving forward they would be providing all staff with a personal logbook for such events, as well as creating a form to be utilized for watermain breaks.

By no later than June 30, 2022, the Operating Authority shall provide the author of this report with written confirmation that all staff working at the Colborne drinking water system have reviewed the requirements of the Ministry's - Watermain Disinfection Procedures document (2020) and that they been provided with a personal logbook, as well as providing a copy of the reported watermain break repair form noted above.

Question Group: Water Quality Monitoring

Question ID	MRDW1081000	Question Type	Legislative
Question: Are all microbiological water quality monitoring requirements for distribution samples being met?			
Legislative Requirement	SDWA O. Reg. 170/03 10-2 (1); SDWA O. Reg. 170/03 10-2 (2); SDWA O. Reg. 170/03 10-2 (3);		
Observation/Corrective Action(s)			
<p>All microbiological water quality monitoring requirements for distribution samples were not being met.</p> <p>For information purposes, based on a population of ~2000 persons, the Corporation of the Township of Cramahe, specific to the Colborne drinking water system is required to sample and test at least 8 + 1/per thousand persons, served by the drinking water system, equating to 10 samples each month, in accordance with Ontario Regulation 170/03, schedule 10-2(1a).</p> <p>A review of the microbiological sampling history over the inspection period indicates that the O/A (Aquatech) collects, a minimum of three (3) distribution system samples each week and is to ensure that at least 25% of those are sampled and tested for heterotrophic plate counts.</p> <p>According to records provided for review samples submitted for the weeks of Aug. 9 & 16/21, did not include requests for analyses of heterotrophic plate counts (HPC).</p> <p>Please be advised that according to O.Reg. 170/03, Schedule 10, a large municipal residential drinking water system shall ensure that samples are collected each week and submitted for testing as follows;</p>			

Distribution samples

10-2. (1) The owner of a drinking water system and the operating authority for the system shall ensure that,

(a) if the system serves 100,000 people or less, at least eight distribution samples, plus one additional distribution sample for every 1,000 people served by the system, are taken every month, with at least one of the samples being taken in each week; and

(b) if the system serves more than 100,000 people, at least 100 distribution samples, plus one additional distribution sample for every 10,000 people served by the system, are taken every month, with at least three of the samples being taken in each week.

(2) The owner of the drinking water system and the operating authority for the system shall ensure that each of the samples taken under subsection (1) is tested for,

(a) *Escherichia coli*; and

(b) total coliforms.

(3) The owner of the drinking water system and the operating authority for the system shall ensure that at least 25 per cent of the samples required to be taken under subsection (1) are tested for general bacteria population expressed as colony counts on a heterotrophic plate count.

By no later than June 30, 2022 provide to the attention of the author of this report a sampling calendar for the balance of 2022, coupled with confirmation all staff have been reminded of the sampling requirements for this drinking water system to include at least 25% of samples submitted are to include requests for HPC analyses.

Question ID	MRDW1088000	Question Type	Legislative
Question: Are all nitrate/nitrite water quality monitoring requirements prescribed by legislation conducted within the required frequency for the DWS?			
Legislative Requirement	SDWA O. Reg. 170/03 13-7;		
Observation/Corrective Action(s) All nitrate/nitrite water quality monitoring requirements prescribed by legislation were not conducted within the required frequency for the DWS. Records indicate that sampling for Nitrites (N02) and Nitrates (N03) were last conducted on Mar. 21, 2022, from the treated water. Prior to this, samples were collected on Oct. 4th of 2021 and again on July 12 of 2021. Based on the above sampling, Nitrite results			

remained low for all three (3) sample results, with values of; <0.10 mg/L, <0.10 mg/L & 0.003 mg/L, respectively. Regarding Nitrate sampling and respective results, those values ranged from <0.10-1.80 mg/L.

Of note, the interval between the later two (2) sampling efforts, (i.e.: Oct.4.21 and Mar. 21/22) was noted to be ~167 days.

The regulatory requirement for the sampling intervals prescribed by legislation in O.Reg. 170/03, Sch. 6-1.1(4), states;

(4) If this Regulation or an approval, municipal drinking water licence or order, including an OWRA approval or OWRA order, requires at least one water sample to be taken every three months or in each calendar quarter and tested for a parameter, the owner of the drinking water system and the operating authority for the system shall ensure that at least one sample that is taken during a three-month period or calendar quarter for the purpose of being tested for that parameter is taken at least 60 days, and not more than 120 days, after a sample was taken for that purpose in the previous three-month period or calendar quarter.

By no later than June 30, 2022, provide written confirmation that sampling will be completed as prescribed in legislation for nitrites & nitrates from the treated water in the future, as well as provide a sampling calendar for nitrites/nitrates for the balance of the 2022 year. In addition, please ensure that all staff assigned to routine sample collection have been reminded of the required N02/N03 sampling for this drinking water system.

INSPECTION DETAILS

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

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

Question ID	MRDW1001000	Question Type	Information
Question: What was the scope of this inspection?			
Legislative Requirement	Not Applicable		
Observation The primary focus of this inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks (MECP) legislation as well as evaluating conformance with ministry drinking water policies and guidelines during the inspection period. The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment, and distribution components as well as management practices. This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O.Reg. 170/03). This inspection has been conducted pursuant to Section 81 of the SDWA. This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements. On May 4, 2022, the Ministry of the Environment, Conservation & Parks (MECP) Water Inspector visited the Colborne Drinking Water System (DWS) for the purpose of performing a "focused-unannounced" drinking water system inspection. The MECP inspector was accompanied during the conduct of the physical inspection by Mr. Ronnie Flannery, Mr. Brian Springer, Mr. Colin MacDonald, all of Aquatech Inc., identified as the Operating Authority for the drinking water system. Mr. Ted Joynt of the Township of Cramahe also accompanied. Mr. Brian Springer is understood to be the Overall Responsible Operator (ORO) and Operator In Charge (OIC) for both the water treatment & distribution subsystems. Mr. Mcdonald is understood to be a certified water distribution subsystems operator. It was noted that several others are employed by Aquatech as Operator's in Training (OIT) who are utilized as needed for the Colborne . Mr. Flannery is identified as the Manager for Aquatech Canadian Water Services - Ontario. water works.			

It should be noted that as of August 1, 2021, Aquatech Canada Water Services Inc., assumed the operating authority (O/A) capacity for the Colborne DWS from Lakefront Utility Services Incorporated.

The Corporation of the Township of Cramahe is acknowledged to be the owner of the Drinking Water System (DWS). Under Ontario Regulation (O.Reg) 170/03, a large municipal residential system, is a drinking water system that serves more than 100 private residences. A major six (6) or more private residences on one (1) or more properties. The Colborne DWS serves a population of approximately 2000 persons, and under regulation is considered a Large Municipal Residential System.

The drinking water system inspection included a physical inspection of the treatment plant, both wells, the water tower, as well as a file review of documentation for the time period from June 1, 2021 to April 30, 2022, herein after referred to as the "inspection period" in this report.

Last years inspection report cited one (1) Issue of Non-Compliance, and identified six (6) Best Practise Recommendations provided for consideration.

Question ID	MRDW1000000	Question Type	Information
Question: Does this drinking water system provide primary disinfection?			
Legislative Requirement	Not Applicable		
Observation This Drinking Water System provides for both primary and secondary disinfection and distribution of water. Primary disinfection is achieved via chlorination & contact time.			

Question ID	MRDW1007000	Question Type	Legislative
Question: Is the owner maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials?			
Legislative Requirement	SDWA O. Reg. 170/03 1-2 (1);		
Observation The owner was maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials.			

During the physical inspection observations confirmed that the well 1A casing was at least >40 cm in height, with adequate sloping, a suitable well cap, and was protected by three (3) bolards. Additionally, it is understood that well 1A has been affixed with Well Tag #A002058. Wells 1 & 2, were both housed inside pumphouse buildings 1 & 2, respectively, with each building having concrete floors. Well 1 is no longer available for use, and it is anticipated to be abandoned as soon as possible. The production wells (1A & 2) are reported to be alternated for use upon start-up.

Question ID	MRDW1009000	Question Type	Legislative
Question: Are measures in place to protect the groundwater and/or GUDI source in accordance with any MDWL and DWWP issued under Part V of the SDWA?			
Legislative Requirement	SDWA 31 (1);		
Observation			
<p>Measures were not in place to protect the groundwater and/or GUDI source in accordance with any the Municipal Drinking Water Licence and Drinking Water Works Permit issued under Part V of the SDWA.</p> <p>Measures to protect the source water have been identified in Municipal License and Permit # 138-101/138-201, as well as Permit's To Take Water #8612-BNENBH.</p> <p>Each of the aforementioned documents prescribes limits as to the water treatment plant's rated capacity &/or the amounts of water that can be taken from either potential well source.</p> <p>Additionally, within Municipal License # 138-101, Schedule B, Section 16.0 - Operations & Maintenance Manual, Items; 16.2.8-16.2.10, inclusive, prescribes requirements regarding the wells, as per the following.</p> <p>16.2.8 An inspection schedule for all wells associated with the drinking water system, including all production wells, standby wells, test wells and monitoring wells;</p> <p>16.2.9 Well inspection and maintenance procedures that consider the entire well structure of each well including all above and below grade well components; and</p> <p>16.2.10 Remedial action plans for situations where an inspection indicates noncompliance with respect to regulatory requirements and/or risk to raw well water quality.</p> <p>Records failed to be produced at the time of the field inspection to confirm that the above cited Municipal License conditions were in place on May 4/22. Subsequent to the field inspection on May 20/22, a document was provided to confirm the existence of an O/M Manual. Reportedly this document was available at the time of the field inspection but</p>			

when requesting to view the O/M Manual when onsite it was not produced from computer memory at that time. Also, on May 26/22, the Ministry contacted the OIC-Colin MacDonald to make inquiry about the existence of an O/M Manual and he noted that to the best of his knowledge that one was available on the computer shared drives, although he had never seen or reviewed it.

It is of concern to the author of this report that staff are not reviewing the O/M Manual upon hire, as the importance of this document can not be understated, as it is to contain all MECP issued control documents (MDWL/DWWP/PTTW), as well as Contingency Plans, etc.

Since an O/M Manual has been made available, along with a hard copy reported to be available onsite, no further actions are required at this time.

Question ID	MRDW1014000	Question Type	Legislative
Question:			
Is there sufficient monitoring of flow as required by the MDWL or DWWP issued under Part V of the SDWA?			
Legislative Requirement	SDWA 31 (1);		
Observation			
There was sufficient monitoring of flow as required by the Municipal Drinking Water Licence or Drinking Water Works Permit issued under Part V of the SDWA.			
Municipal License 138-101, Schedule C, section 2.0, states that the Drinking Water System (DWS) shall ensure continuous flow measurement and recording for;			
2.1.1) the flow rate and daily volume of treated water that flows from the treatment system conveyed into the treatment sub system to the distribution system and;			
2.1.2) the flow rate and daily volume of water that flows into the treatment subsystem.			
The physical inspection revealed two (2) magnetic flow meters capturing flows from the two well sources. The two raw water magnetic flow meters were both noted to be manufactured by Siemens. Additionally, records provided indicate that both meters were recently successfully calibrated by Tower Electronics, Mr. Dan Matchett on May 6/22.			

Question ID	MRDW1016000	Question Type	Legislative
Question:			
Is the owner in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the MDWL issued under Part V of the SDWA?			

Legislative Requirement	SDWA 31 (1);
Observation	
<p>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.</p> <p>Data provided for review indicates that no rated capacity exceedances of Municipal License #138-101 (Issue 4 @ 3283 m3/d) or Permit To Take Water #8612-BNENBH (2280 L/min), occurred over the inspection period under review. Daily flows ranged from 6.96 m3/d (July-21) to 1456.32 m3/d (Feb.22). Records provided did indicate that several instantaneous elevated flows occurred during the months of June, July, Sept, Oct. & Nov of 2021 and Jan. of 2022, although when investigated they all were confirmed to be spikes or of such a short duration that the trends did not reveal the instantaneous data.</p>	

Question ID	MRDW1030000	Question Type	Legislative
Question: Is primary disinfection chlorine monitoring being conducted at a location approved by MDWL and/or DWWP issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved?			
Legislative Requirement	SDWA O. Reg. 170/03 7-2 (1); SDWA O. Reg. 170/03 7-2 (2);		
Observation Primary disinfection chlorine monitoring was conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Works Permit issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved. It is acknowledged that primary disinfection is achieved via chlorination coupled with sufficient contact time. Wellhouse #1 includes a Siemens free chlorine residual analyzer (equipped with alarms/lock-outs) monitoring the chlorine residuals "after" the contact tank. The contact tank is understood to be 215 m in length by 450 mm in diameter, equating to a volume of 34.2 M3.			

Question ID	MRDW1033000	Question Type	Legislative
Question:			
Is the secondary disinfectant residual measured as required for the large municipal residential distribution system?			
Legislative Requirement	SDWA O. Reg. 170/03 7-2 (3); SDWA O. Reg. 170/03 7-2 (4);		

Observation

The secondary disinfectant residual was measured as required for the distribution system.

It is understood that secondary disinfection is monitored daily, via grab sampling. According to records provided the secondary disinfectant residuals ranged from 0.73 - 1.90 mg/L. Records provided did identify values above 1.90 mg/L, but were all (x4) reported to be data entry errors.

Question ID	MRDW1037000	Question Type	Legislative
Question: Are all continuous monitoring equipment utilized for sampling and testing required by O. Reg.170/03, or MDWL or DWWP or order, equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6?			
Legislative Requirement	SDWA O. Reg. 170/03 6-5 (1)1-4; SDWA O. Reg. 170/03 6-5 (1)5-10; SDWA O. Reg. 170/03 6-5 (1.1);		
Observation All continuous monitoring equipment utilized for sampling and testing required by O. Reg. 170/03, or Municipal Drinking Water Licence or Drinking Water Works Permit or order, were equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6. During the physical inspection of the Colborne DWS it was determined that the only continuous monitoring unit was the Siemens free chlorine residual analyzer monitoring the chlorine residual at the point at the end of the contact tank & where primary disinfection has been achieved as per legislation. Documentation provided indicates that alarms have been established for this unit with a low limit of 0.45 mg/L and a high limit of 4.0 mg/L.			

Question ID	MRDW1038000	Question Type	Legislative
Question: Is continuous monitoring equipment that is being utilized to fulfill O. Reg. 170/03 requirements performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format?			
Legislative Requirement	SDWA O. Reg. 170/03 6-5 (1)1-4;		
Observation 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.

Question ID	MRDW1035000	Question Type	Legislative
Question: Are operators examining continuous monitoring test results and are they examining the results within 72 hours of the test?			
Legislative Requirement	SDWA O. Reg. 170/03 6-5 (1)1-4; SDWA O. Reg. 170/03 6-5 (1)5-10;		
Observation Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test. A sporadic review of the logbooks and reports indicate that the SCADA and trended data are reviewed daily and documented as "trends review" in the logs.			

Question ID	MRDW1040000	Question Type	Legislative
Question: Are all continuous analysers calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation?			
Legislative Requirement	SDWA O. Reg. 170/03 6-5 (1)1-4; SDWA O. Reg. 170/03 6-5 (1)5-10;		
Observation All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation. Records provided indicate that calibrations of the Siemens-W/T chlorine residual analyzer is being completed in-house routinely. In fact, records show that calibrations are being completed multiple times per month when a deviation between the portable chlorine analyzer and the online chlorine analyzer is more than 0.05 mg/L.			

Question ID	MRDW1108000	Question Type	Legislative
Question: Where continuous monitoring equipment used for the monitoring of free chlorine residual, total chlorine residual, combined chlorine residual or turbidity, required by Regulation 170, an Order, MDWL, or DWWP issued under Part V, SDWA, has triggered an alarm or an automatic shut-off, did a qualified person respond in a timely manner and take appropriate			

actions?	
Legislative Requirement	SDWA O. Reg. 170/03 6-5 (1)1-4; SDWA O. Reg. 170/03 6-5 (1)5-10; SDWA O. Reg. 170/03 6-5 (1.1);
Observation	
<p>Where required continuous monitoring equipment used for the monitoring of chlorine residual and/or turbidity triggered an alarm or an automatic shut-off, a qualified person responded in a timely manner and took appropriate actions.</p> <p>A total of six (6) call-ins occurred during the months of June & July - 2021, when Lakefront Utilities was still the Operating Authority (O/A). All responding staff are understood to be certified WDS operator's.</p> <p>Subsequent to that time in August of 2021, Aquatech Canada WS assumed the Operating Authority capacity where a reported total of five (5) call-ins occurred. Each of the call-in alarms were satisfied by operator, Mr. Colin MacDonald, aside from a single event occurring on Aug. 7/21, taken care of by the ORO, Mr. Brian Springer. It is recommended that call-in records be captured on a separate form, along with the facility logbook for ease of records location & transfer.</p>	

Question ID	MRDW1018000	Question Type	Legislative
Question:			
Has the owner ensured that all equipment is installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit?			
Legislative Requirement	SDWA 31 (1);		
Observation			
The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.			

Question ID	MRDW1020000	Question Type	Legislative
Question: Is the owner/operating authority able to demonstrate that, when required during the inspection period, Form 1 documents were prepared in accordance with their Drinking Water Works Permit?			
Legislative Requirement	SDWA 31 (1);		
Observation			
The owner/operating authority was in compliance with the requirement to prepare Form 1			

documents as required by their Drinking Water Works Permit during the inspection period.

Records provided indicate that a single Form #1 - Record of Watermain Authorized as Future Alteration, dated November 17, 2020 and signed by Mr. Kevin Heathcote, P.Eng. for work carried out in the area of County Road #2 and Colton street. Of note, that Operating Authority signed this same document (Part #4) several months later on July 7, 2021 and was signed by Mr. Larry Spryka of Lakefront Utilities. Please be reminded that these records are required to be retained for a period of ten (10) years.

Question ID	MRDW1021000	Question Type	Legislative
Question: Is the owner/operating authority able to demonstrate that, when required during the inspection period, Form 2 documents were prepared in accordance with their Drinking Water Works Permit?			
Legislative Requirement		SDWA 31 (1);	
Observation The owner/operating authority was in compliance with the requirement to prepare Form 2 documents as required by their Drinking Water Works Permit during the inspection period. Three (3) Form 2 - Record of Minor Modification or Replacements to the Drinking Water System were provided for the; replacement of Well #2-Pump Motor that failed on July 15/21, as well as a new Siemens Evoqua chlorine residual analyzer, replacing the older US Filter W/T chlorine monitoring unit, as well as a new DICE dosing system, replacing the previous arrangement. Please be advised that a Form 2 - Record of Minor Modification or Replacements to the Drinking Water System is only to be utilized in accordance with Drinking Water Works Permit (DWWP) #138-201, when alterations are considered "pre-approved" as noted within your DWWP. Further these records are required to be retained for a period of ten (10) years.			

Question ID	MRDW1023000	Question Type	Legislative
Question: Do records indicate that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a DWWP and/or MDWL issued under Part V of the SDWA at all times that water was being supplied to consumers?			
Legislative Requirement		SDWA O. Reg. 170/03 1-2 (2);	

Observation

Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 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.

A raw water supply which is ground water means water located in subsurface aquifer(s) where the aquifer overburden and soil act as an effective filter that removes micro-organisms and other particles by straining and antagonistic effect, to a level where the water supply may already be potable but disinfection is required as an additional health risk barrier. Where the drinking-water system obtains water from a raw water supply which is ground water, the treatment process must, as a minimum, consist of disinfection and must be credited with achieving an overall performance that provides, at a minimum 2-log (99%) removal or inactivation of viruses before the water is delivered to the first consumer, as is the case for the Colborne Drinking Water System.

The treatment system includes a 215 m long (450 mm-dia.) contact pipe, along with chlorination, which together has been credited with 2.0+-log R/I of Viruses, based on Municipal License #138-101, Schedule E, providing that the CT provided shall be greater than or equal to the CT required to achieve the log removal credits assigned.

Liquid sodium hypochlorite (~12%) is injected immediately upstream of the contact pipe to satisfy primary disinfection, as well as secondary disinfection. CT calculations generated by the author of this report utilizing worst case variables of; max flow rate of 38 L/s (2.28 L/min), baffle factor of 0.7 for the contact pipe, a low free chlorine residual alarm set point of 0.45 ppm, a max pH of ~7, contact tank volume of 34 m³, and a min temperature of ~11 degrees Celsius, yielded CT achieved value of ~4.7 mg.min/L.

The required CT value, according to the Ministry's-Procedure for Disinfection of Drinking Water in Ontario, indicates that a CT Required value of 3 mg.min/L is necessary.

As a matter of comparison & as an example utilizing the worst case variables extracted from operational data provided for the months of July 2021 and February 2022 yielded CT-Achieved values of ~10.38 mg.min/L & 15.60 mg.min/L, respectively.

Of note and in review of the plant discharge chlorine residual data many minimum values were identified that were less than 0.45 mg/L for the months of Sept., Oct., Nov., Dec., of 2021 and Jan & Mar. of 2022. The Operating Authority must account for these low values below that required to achieve primary disinfection as part of the 72 hour reviews. The operators should be reviewing the daily SCADA numerical data to determine if it aligns with that of the trended data and where it falls outside of what is considered normal operations, the operator should be qualifying the reasons why and what the "real data" was for the period of time of concern.

Following the field inspection, records were provided to indicate that the months in question

when the primary disinfectant residual dropped below 0.45 ppm were consequential to maintenance, power outages &/or calibrations.

It is recommended that these real data sets be documented on the daily SCADA print outs (for example) for the benefit of any/all reviewers of the compliance data sets.

Question ID	MRDW1024000	Question Type	Legislative
Question: Do records confirm 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?			
Legislative Requirement	SDWA O. Reg. 170/03 1-2 (2);		
Observation Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined. Secondary chlorine residual values are collected via grab sampling and during routine bacteriological sample collection efforts. According to records the lowest reported secondary disinfectant chlorine residual collected, occurred in Sept., 2021, yielding a value of 0.73 ppm. The highest reported chlorine residual occurred on Nov., 2021, with a value of 1.90 mg/L.			

Question ID	MRDW1025000	Question Type	Legislative
Question: Were all parts of the drinking water system that came in contact with drinking water (added, modified, replaced or extended) disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?			
Legislative Requirement	SDWA 31 (1);		
Observation All parts of the drinking water system were not disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit. Records were requested to confirm the details associated with the inspection period watermain breaks. The water inspector requested the actual logbook records which were not provided and instead a pair of summary documents were. The summary documents			

had locations for the following; the date, location, operator, category, actions taken, pipe size, positive flows, contractors, scheduled (Y/N), air gap, contamination suspected (Y/N), free & total chlorine residuals, date returned to normal service & pipe materials.

Please be advised that part of the requirements of O.Reg. 128 /04 and more relevantly the DWWP, Section 2.0 & the 2020-Watermain Disinfection Procedures document, Section 3.2, indicates that records shall be captured of the disinfectant residual following final post-repair flushing. If final disinfectant residual is less than 0.2 mg/L free chlorine in a chlorinated system, then provide the location and results of the upstream disinfectant residual(s) or documented benchmarks for the area. In addition, if applicable if microbiological samples were collected & submitted for analyses. According to the excel summary document, the operator failed to capture the disinfectant on Sept. 9, Oct. 13 & 28, Nov. 10 & 30 and Apr. 12/22, with the balance of the breaks (x4) stated the following; "matched residuals taken in the field this day, actual value not recorded".

The Operating Authority has recognized their oversight in this regard and advise that moving forward they would be providing all staff with a personal logbook for such events, as well as creating a form to be utilized for watermain breaks.

By no later than June 30, 2022, the Operating Authority shall provide the author of this report with written confirmation that all staff working at the Colborne drinking water system have reviewed the requirements of the Ministry's - Watermain Disinfection Procedures document (2020) and that they been provided with a personal logbook, as well as providing a copy of the reported watermain break repair form noted above.

Question ID	MRDW1062000	Question Type	Legislative
Question:			
Do records or other record keeping mechanisms confirm that operational testing not performed by continuous monitoring equipment is being done by a certified operator, water quality analyst, or person who meets the requirements of O. Reg. 170/03 7-5?			
Legislative Requirement	SDWA O. Reg. 170/03 7-5;		
Observation			
Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was being done by a certified operator, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5.			
The Colborne drinking water system relies on grab sampling efforts to monitoring the secondary disinfectant chlorine residual concentrations. Staff associated with this activity are understood to possess certification at a minimum of an Operator in Training (OIT) certificate or higher.			

Question ID	MRDW1060000	Question Type	Legislative
Question: Do the operations and maintenance manuals meet the requirements of the DWWP and MDWL issued under Part V of the SDWA?			
Legislative Requirement SDWA 31 (1);			
Observation			
<p>The operations and maintenance manuals did not meet the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence issued under Part V of the SDWA.</p> <p>During the field inspection the Operations & Maintenance (O/M) Manual was requested however the Operating Authority did not have an assembled version onsite for review but indicated that many of the necessary components of the O/M Manual could be found either within the documentation provided, or on their computer but was not produced for review at that time.</p> <p>Please note that an O/M Manual is not a series of separate documents, but rather a concise compilation of pertinent legislation, control documents/approvals, procedures for the safe and effective operations & maintenance of the works, plans, drawings, and process description to be readily available for all staff.</p> <p>A thorough review of the documentation provided did not reveal an O/M Manual but rather an outdated copy of the facilities Municipal Drinking Water License (MDWL-Issue 3) and Drinking Water Permit (DWWP-Issue 2), although the current Permit To Take Water #8612-BNENBH, was provided. Additionally, records could not be located to support that documentation was available as it relates to Municipal License 138-101 (Issue 4), Sch. B, Section 16.0, entitled "Operations & Maintenance Manual", Conditions 16.2.3-16.2.10, as well as 16.3.</p> <p>Please note that Municipal License 138-101, Sch. B, Condition 16.1, obligates the Works Owner & Operating Authority to have an "up to date" copy of the operations and Maintenance Manual, as per Condition 16.1, which states;</p> <p>16.1 An "up-to-date" operations and maintenance manual or manuals shall be maintained and applicable parts of the manual or manuals shall be made available for reference by all persons responsible for all or part of the operation or maintenance of the drinking water system.</p> <p>In addition, according to O.Reg. 128/04, Section 28, states;</p> <p>Operations and maintenance manuals</p> <p>28. The owner or operating authority of a subsystem shall ensure that operators and</p>			

maintenance personnel in the subsystem have ready access to the comprehensive operations and maintenance manuals that contain plans, drawings and process descriptions sufficient for the safe and efficient operation of the subsystem. O. Reg. 128/04, s. 28.

A consolidated O/M Manual was provided on May 20/22, post the field inspection that did include a copy of the MDWL & DWWP, however (as noted) the Municipal License (Issue #3) & the DWWP (Issue #2) have since been revised with an Issue #4 and Issue #3, respectively.

Of note, following the field inspection the O/A asserts that the components of the O/M Manual were all available electronically during the field inspection, although they were not produced at the time of the inspection upon request aside from the ML/DWWP. In fact during a conversation held with Mr. Springer - ORO on May 26/22, it was reported that the consolidated O/M Manual was created after the field inspection.

In addition, no plans were identified within the electronic O/M Manual, but an outdated Process & Flow Diagram (PFD) was available within the Municipal License, however it incorrectly identifies Well #1, which has been abandoned, with Well 1A now being identified as one of the two (2) available production wells, (i.e.: Wells 1A & 2) for the Works.

By no later than June 30, 2022, provide to the attention & satisfaction of the Provincial Officer & author of this report a copy of an up to date Operations & Maintenance Manual that satisfies the requirements outlined in the facilities Municipal License, to include copies of the current Municipal License and Drinking Water Works Permit, as well as a current PFD, that includes reference to Well 1A and not Well 1.

Question ID	MRDW1071000	Question Type	BMP
Question: Has the owner provided security measures to protect components of the drinking water system?			
Legislative Requirement	Not Applicable		
Observation The owner had provided security measures to protect components of the drinking water system. Visual observations made during the field inspection revealed alarm contacts on doors of both wellhouses, and locks on doors. The water standpipe was perimetered by chain link fencing and a gate equipped with a pad lock and, the small building at this site, revealed that the single door was equipped with a set of alarm contacts. Mr. Springer advised that the compound area of the wellhouse may soon be equipped with an entrance gate and			

fencing around the property to enclose & secure the buildings and well 1A.

Question ID	MRDW1073000	Question Type	Legislative
Question: Has the overall responsible operator been designated for all subsystems which comprise the drinking water system?			
Legislative Requirement SDWA O. Reg. 128/04 23 (1);			
Observation <p>The overall responsible operator had not been designated for each subsystem. The Colborne DWS has been categorized as a Class III - Water Distribution & Supply Subsystem, certificate #3006.</p> <p>It is important to note that the Colborne drinking water system (DWS) has been operated by two (2) Operating Authorities over this inspection period under review. For the months of June & July of 2021, Lakefront Utilities Systems Inc. (LUSI) operated the Works, and the period subsequent to that and ongoing, the Works is being operated by Aquatech Canada Water Systems (ACWS).</p> <p>The Overall Responsible Operator (ORO) for the Colborne DWS during the period when Lakefront Utility Systems was the acting Operating Authority has been identified as Mr. Larry Spyрка. It is acknowledged that he possesses a Class III certificate in Water Distribution & Supply Subsystems, certificate #96986, expiry May 31, 2023.</p> <p>The Overall Responsible Operator (ORO) for the Colborne DWS on behalf of Aquatech Canada, from August 2021 forward, has been identified as Mr. Brian Springer. Mr. Springer has been confirmed to hold a valid Water Distribution & Supply Subsystem, Class IV operator's license, certificate # 10629, with an expiry date of June 30, 2023.</p> <p>During the field inspection it was reported by Mr. Springer had travelled outside the Province of Ontario on business for Aquatech Canada for the period between November 15 - December 21, 2021. Unfortunately, the Owner & Aquatech Canada management failed to designate another as the Overall Responsible Operator during Mr. Springer's time away.</p> <p>For information purposes an ORO may not be out of province or country and able to provide direction only by electronic means. The expectation is that the ORO be in close proximity to the site and able to attend in person to effectively address an emergency situation.</p> <p>Immediately is typically interpreted as "without delay".</p> <p>Section 23(4) of O. Reg. 128/04 states in part:</p>			

(4) If the overall responsible operator designated under subsection (1) or (2) is absent or unable to act, the owner or operating authority or, if the owner or operating authority authorizes it, the overall responsible operator may designate an operator who holds a certificate that is applicable to that type of subsystem and, if applicable, that is not more than one class lower than the class of the subsystem to act in the place of the overall responsible operator (emphasis added).

An emergency situation may require the ORO to be physically present to take effective action. As such, it is imperative for an ORO to be able to quickly attend site and able to take physical action when required.

By no later than June 30, 2022, provide to the attention of the author of this report a written understanding that outlines who can be designated as the Overall Responsible Operator when the primary designate is absent or unable to act. Also, provide a list of back-up ORO's the Aquatech Canada will utilize should the need present itself in the future.

Question ID	MRDW1074000	Question Type	Legislative
Question: Have operators in charge been designated for all subsystems for which comprise the drinking water system?			
Legislative Requirement	SDWA O. Reg. 128/04 25 (1);		
Observation Operators-in-charge had been designated for all subsystems which comprised the drinking water system. Mr. Springer of Aquatech Canada has also been identified as the current & only Operator In Charge (OIC), & prior to his time, LUSI was understood to have designated all of their staff as Operator's in Charge.			

Question ID	MRDW1075000	Question Type	Legislative
Question: Do all operators possess the required certification?			
Legislative Requirement	SDWA O. Reg. 128/04 22;		
Observation All operators possessed the required certification.			

It has been reported that all of the staff from Aquatech Canada currently assigned to the Colborne drinking water system possess certification as Operator's In Training (OIT), with the exception of Mr. Springer of course, and Mr. Colin MacDonald, who possesses certification at a Class 1 level in Water Distribution Subsystems.

Staff operator certification details;

Mr. Colin MacDonald, Class 1 - WD, Cert #50972, Exp: Apr. 30/25

Mr. Brett Pollard, OIT-WDS, Cert.#OT79906, Exp: Apr. 30/24

Mr. Shawn Neilson, WDS-2, Cert.#103918, Exp: Mar. 31/23 (no longer employed with ACWS)

Mr. Andy Ingale, OIT-WS, Cert.#43904, Exp: May 31/24

Mr. Morgan Chisholm, OIT-WS, Cert.#105986, Exp: June 30/22

Question ID	MRDW1076000	Question Type	Legislative
Question: Do only certified operators make adjustments to the treatment equipment?			
Legislative Requirement	SDWA O. Reg. 170/03 1-2 (2);		
Observation Only certified operators made adjustments to the treatment equipment.			

Question ID	MRDW1099000	Question Type	Information
Question: Do records show that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O. Reg.. 169/03)?			
Legislative Requirement	Not Applicable		
Observation Records showed that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O.Reg. 169/03).			

Question ID	MRDW1096000	Question Type	Legislative
Question:			

Do records confirm that chlorine residual tests are being conducted at the same time and at the same location that microbiological samples are obtained?	
Legislative Requirement	SDWA O. Reg. 170/03 6-3 (1);
Observation	
Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.	
A sporadic review of Chain of Custody records provided confirms that staff are capturing chlorine residuals at the same time as microbial sampling.	

Question ID	MRDW1081000	Question Type	Legislative
Question:			
Are all microbiological water quality monitoring requirements for distribution samples being met?			
Legislative Requirement	SDWA O. Reg. 170/03 10-2 (1); SDWA O. Reg. 170/03 10-2 (2); SDWA O. Reg. 170/03 10-2 (3);		
Observation			
All microbiological water quality monitoring requirements for distribution samples were not being met.			
For information purposes, based on a population of ~2000 persons, the Corporation of the Township of Cramahe, specific to the Colborne drinking water system is required to sample and test at least 8 + 1/per thousand persons, served by the drinking water system, equating to 10 samples each month, in accordance with Ontario Regulation 170/03, schedule 10-2 (1a).			
A review of the microbiological sampling history over the inspection period indicates that the O/A (Aquatech) collects, a minimum of three (3) distribution system samples each week and is to ensure that at least 25% of those are sampled and tested for heterotrophic plate counts.			
According to records provided for review samples submitted for the weeks of Aug. 9 & 16/21, did not include requests for analyses of heterotrophic plate counts (HPC).			
Please be advised that according to O.Reg. 170/03, Schedule 10, a large municipal residential drinking water system shall ensure that samples are collected each week and submitted for testing as follows;			
Distribution samples			
10-2. (1) The owner of a drinking water system and the operating authority for the system			

shall ensure that,

(a) if the system serves 100,000 people or less, at least eight distribution samples, plus one additional distribution sample for every 1,000 people served by the system, are taken every month, with at least one of the samples being taken in each week; and

(b) if the system serves more than 100,000 people, at least 100 distribution samples, plus one additional distribution sample for every 10,000 people served by the system, are taken every month, with at least three of the samples being taken in each week.

(2) The owner of the drinking water system and the operating authority for the system shall ensure that each of the samples taken under subsection (1) is tested for,

(a) *Escherichia coli*; and

(b) total coliforms.

(3) The owner of the drinking water system and the operating authority for the system shall ensure that at least 25 per cent of the samples required to be taken under subsection (1) are tested for general bacteria population expressed as colony counts on a heterotrophic plate count.

By no later than June 30, 2022 provide to the attention of the author of this report a sampling calendar for the balance of 2022, coupled with confirmation all staff have been reminded of the sampling requirements for this drinking water system to include at least 25% of samples submitted are to include requests for HPC analyses.

Question ID	MRDW1083000	Question Type	Legislative
Question: Are all microbiological water quality monitoring requirements for treated samples being met?			
Legislative Requirement	SDWA O. Reg. 170/03 10-3;		
Observation All microbiological water quality monitoring requirements for treated samples were being met. A review of the treated water sampling records provided did confirm that all sampling prescribed by legislation has been carried out, with one exception of Aug. 9/21, where a HPC sample failed to be requested for analyses. As a reminder please note that according to O.Reg. 170/03, Sch. 10, subsection 10-3 states; Treated samples			

10-3. The owner of a drinking water system and the operating authority for the system shall ensure that a water sample is taken at least once every week and tested for,

- (a) Escherichia coli;
- (b) total coliforms; and
- (c) general bacteria population expressed as colony counts on a heterotrophic plate count.

Question ID	MRDW1084000	Question Type	Legislative
Question: Are all inorganic water quality monitoring requirements prescribed by legislation conducted within the required frequency?			
Legislative Requirement	SDWA O. Reg. 170/03 13-2;		
Observation All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency. Schedule 23 parameters were last collected on Jan. 13, 2020. Please be advised that O. Reg. 170/03, Schedule 13 dictates that Schedule 23 parameters shall be gathered at least once every thirty-six (36) months respective to a Large Municipal Residential drinking water system, utilizing a groundwater source for their water supply.			

Question ID	MRDW1085000	Question Type	Legislative
Question: Are all organic water quality monitoring requirements prescribed by legislation conducted within the required frequency?			
Legislative Requirement	SDWA O. Reg. 170/03 13-4 (1); SDWA O. Reg. 170/03 13-4 (2); SDWA O. Reg. 170/03 13-4 (3);		
Observation All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency. Schedule 24 parameters were last collected on Jan. 13, 2020.			

Please be advised that O. Reg. 170/03, Schedule 13 dictates that Schedule 23 parameters shall be gathered at least once every thirty-six (36) months respective to a Large Municipal Residential drinking water system, utilizing a groundwater source for their water supply.

Question ID	MRDW1086000	Question Type	Legislative
Question:			
Are all haloacetic acid water quality monitoring requirements prescribed by legislation conducted within the required frequency and at the required location?			
Legislative Requirement	SDWA O. Reg. 170/03 13-6.1 (1); SDWA O. Reg. 170/03 13-6.1 (2); SDWA O. Reg. 170/03 13-6.1 (3); SDWA O. Reg. 170/03 13-6.1 (4); SDWA O. Reg. 170/03 13-6.1 (5); SDWA O. Reg. 170/03 13-6.1 (6);		
Observation			
All haloacetic acid water quality monitoring requirements prescribed by legislation are being conducted within the required frequency and at the required location.			
Data provided for review indicates that the Colborne DWS last sampled for Haloacetic Acid (HAA) on Apr. 5, 2022, with a result of <2 ug/L, and prior to this, samples were collected on Dec. 28 & Oct. 4, & Sept. 20 of 2021, all yielding results of < 2ug/L.			
For information purposes the maximum acceptable concentration of HAAs in the distribution system according to O.Reg. 169/03 is 0.08 mg/L or 80 ug/L expressed as a Running Annual Average (RAA).			

Question ID	MRDW1087000	Question Type	Legislative
Question:			
Have all trihalomethane water quality monitoring requirements prescribed by legislation been conducted within the required frequency and at the required location?			
Legislative Requirement	SDWA O. Reg. 170/03 13-6 (1);		
Observation			
All trihalomethane water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.			
Based upon records provided it appears that the last sample collected and submitted for analyses of trihalomethanes occurred on Apr. 12, 2022, yielding a result of <1.5 ug/L, and prior to this on Dec. 28, 2021, yielding results ranging from 3.1-6.1 ug/L.			

Question ID	MRDW1088000	Question Type	Legislative
Question: Are all nitrate/nitrite water quality monitoring requirements prescribed by legislation conducted within the required frequency for the DWS?			
Legislative Requirement	SDWA O. Reg. 170/03 13-7;		
Observation All nitrate/nitrite water quality monitoring requirements prescribed by legislation were not conducted within the required frequency for the DWS. Records indicate that sampling for Nitrites (N02) and Nitrates (N03) were last conducted on Mar. 21, 2022, from the treated water. Prior to this, samples were collected on Oct. 4th of 2021 and again on July 12 of 2021. Based on the above sampling, Nitrite results remained low for all three (3) sample results, with values of; <0.10 mg/L, <0.10 mg/L & 0.003 mg/L, respectively. Regarding Nitrate sampling and respective results, those values ranged from <0.10-1.80 mg/L. Of note, the interval between the later two (2) sampling efforts, (i.e.: Oct.4.21 and Mar. 21/22) was noted to be ~167 days. The regulatory requirement for the sampling intervals prescribed by legislation in O.Reg. 170/03, Sch. 6-1.1(4), states; (4) If this Regulation or an approval, municipal drinking water licence or order, including an OWRA approval or OWRA order, requires at least one water sample to be taken every three months or in each calendar quarter and tested for a parameter, the owner of the drinking water system and the operating authority for the system shall ensure that at least one sample that is taken during a three-month period or calendar quarter for the purpose of being tested for that parameter is taken at least 60 days, and not more than 120 days, after a sample was taken for that purpose in the previous three-month period or calendar quarter. By no later than June 30, 2022, provide written confirmation that sampling will be completed as prescribed in legislation for nitrites & nitrates from the treated water in the future, as well as provide a sampling calendar for nitrites/nitrates for the balance of the 2022 year. In addition, please ensure that all staff assigned to routine sample collection have been reminded of the required N02/N03 sampling for this drinking water system.			

Question ID	MRDW1089000	Question Type	Legislative
Question: Are all sodium water quality monitoring requirements prescribed by legislation conducted			

within the required frequency?	
Legislative Requirement	SDWA O. Reg. 170/03 13-8;
Observation	
All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency.	
According to records provided for review sampling for Sodium (Na) was last completed on Sept. 16, 2019, from the treated water, yielding a result of 6.87 mg/L.	

Question ID	MRDW1090000	Question Type	Legislative
Question:			
Where fluoridation is not practiced, are all fluoride water quality monitoring requirements prescribed by legislation conducted within the required frequency?			
Legislative Requirement	SDWA O. Reg. 170/03 13-9;		
Observation			
All fluoride water quality monitoring requirements prescribed by legislation were conducted within the required frequency.			
Sampling for Fluoride was last completed on Sept. 16, 2019, from treated water, yielding a result of 0.09 mg/L.			

Question ID	MRDW1100000	Question Type	Information
Question:			
Did any reportable adverse/exceedance conditions occur during the inspection period?			
Legislative Requirement	Not Applicable		
Observation			
There were no reportable adverse/exceedances during the inspection period.			

Question ID	MRDW1113000	Question Type	Legislative
Question:			
Have all changes to the system registration information been provided to the Ministry within ten (10) days of the change?			
Legislative Requirement	SDWA O. Reg. 170/03 10.1 (3);		

Observation

All changes to the system registration information were not provided within ten (10) days of the change.

Prior to the physical inspection carried out on May 4, 2022, the author of this report reviewed the current drinking water system profile for Colborne to find out that it mistakenly identifies Mr. Arryn McNichol as Manager of Public Works, when in fact he was the Chief Administrative Officer/Treasurer, although, it was reported by Mr. Joynt that he had departed the Township of Cramahe, and now Mr. Mark MacDonald is identified as the (Acting) CAO for the Township. Additionally, Mr. David Macpherson, Manager of Public Works & Environmental Services has also left his capacity with the Township, and this position currently is vacant.

Please be advised that according to O.Reg. 170/03, Section 10.1(3) states (in part) the following;

10.1 (3) If there is any change to the information given to the Director under subsection (1) or (2), the owner of the drinking water system shall give the Director written notice of the change within 10 days of the change. O. Reg. 247/06, s. 9.

By no later than June 30, 2022 provide confirmation to the attention of the author of this report that the Colborne drinking water system profile has been suitably updated to reflect the above noted changes, along with any other pertinent details applicable.

Question ID	MRDW1114000	Question Type	Legislative
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?			
Legislative Requirement	SDWA 31 (1);		
Observation The owner had evidence that all required notifications to all legal owners associated with the Drinking Water System had been made during the inspection period. Records provided indicate that the Works Owner communicated with MECP-Permission & Licensing Section during the renewal of the Municipal License 138-101, Issue 4.			

Question ID	MRDW1115000	Question Type	Legislative
Question: In the event that an issue of non-compliance outside the scope of this inspection protocol is			

identified, a "No" response may be used if further actions are deemed necessary (and approved by the DW Supervisor) to facilitate compliance.

Legislative Requirement	Not Applicable
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Observation

The following instance(s) of non-compliance were also noted during the inspection:

Records provided indicate that an updated drinking water system (DWS) profile was provided to the Ministry on August 10, 2021, however, it is understood that the new Operating Authority assumed their control of the DWS on August 1, 2021.

According to Municipal License 138-101, Sch. B, Condition 11, Section 11.2, the Owner is to notify the Director at least "30 days" prior to a new Owner of Operating Authority taking over, as per the following;

11.0 Change of Owner or Operating Authority

11.2 The owner shall notify the Director in writing at least 30 days prior to a change of any operating authority identified in Schedule A of this licence.

No further actions required in this case, however the Owner (O/A) are reminded to ensure that they submit documentation as outlined in legislation or control documents to avoid potential violations and any consequences that may accompany them.

Question ID	MRDW1116000	Question Type	BMP
Question: Were the inspection questions sufficient to address other identified best practice issues?			
Legislative Requirement	Not Applicable		
Observation The following issues were also noted during the inspection: It is strongly recommended that the Operating Authority in consultation with the Works Owner (where applicable) consider the following for implementation; 1.) During the review of data it was noticed that there was a fair amount of misinformation provided in the overall submissions. It is extremely important that all data provided to the Ministry during compliance inspections be "proofed" prior to submission to ensure that any data sets that may fall outside of a compliance parameter or regulator requirements are qualified to include details to either discount the event/s, or outline the issue for full disclosure purposes. For example, multiple raw water flow data rates exceeded the PTTW instantaneous flow rate limit, without any details to advise the Inspector of such things as			

the duration of the event or if there were extraneous circumstances that caused the event, these on the surface then would be considered violations. Similarly, several primary disinfection chlorine residual values <0.45 ppm were identified, but without any details to qualify this data, could result in violations being cited due to inadequacies of primary disinfection &/or failing to report as "Other Observations".

It is recommended that the Works Owner/Operating Authority review the newly created Anomalous data sheet and ensure that it accompanies inspection data provided to speak to any events that fall outside of compliance. These sheets should include (but not limited to), the duration of the event, cause, corrective actions, actual variable (max/min or min) vs misinformation, and date, time of the occurrence, as well as if a call-in was associated with corrective actions or a response, etc, etc.

2.) It is recommended that a document be drafted and affixed to the front cover of the active log book/s, to include a statement by the DWS owner, that identifies who is to assume the ORO/OIC positions, their alternate, and any other persons that the Drinking water system or the Overall Responsible Operator shall designate as being authorized to make entries, all operator names/signatures, level of operator & plant certifications, certificate numbers and expiry dates.

3.) It is recommended that the Owner/O/A confer with their Building/Plumbing Department in an effort to compile a comprehensive list of facilities that are equipped with backflow prevention devices, to include; type, size, make & model, as well as location, reasons for the installation of a backflow prevention device, i.e: threats identified.

4.) It is recommended that the O/A draft & utilize a call-in log sheet for all after hours operator responses to alarms or adverse conditions. The records should include the dates, times in/out, operator name & signature, alarms, corrective actions, persons notified (MOH, Owner, MECP, Mgmt, etc, etc).

5.) It is recommended that the O/M Manual also include copies of O.Reg. 170/03, O.Reg. 128/04, The Ministry's - Watermain Disinfection Procedure, a P.I.D., identification of where the "As Built" drawings can be located, identification of persons to be designated as the O. R.O. & O.I.C., all relevant Standard Operating Procedures (SOP), applicable Contingency Plans, to include a Contingency Plan for the reporting and actions required to address the potential of Spills. Please keep in mind that this is to be a "living document" and will require occasional revisions as changes to the staff, equipment or control documents occur.

Question ID	MRDW1117000	Question Type	Information
Question: Are there any other DWS related items that should be recognized in this report?			

Legislative Requirement	Not Applicable
Observation	
<p>The following items are noted as being relevant to the Drinking Water System:</p> <p>The inspection period under review June-2021 to March 2022, the Colborne drinking water system utilized the services of two (2) Operating Authorities. For the time period of June & July of 2021, Lakefront Utilities carried out the required functions/duties as the Operating Authority, and post that time, under a new five (5) year contract, Aquatech Canada Water Services is to do the same.</p>	



APPENDIX A

STAKEHOLDER APPENDIX

Key Reference and Guidance Material for Municipal Residential Drinking Water Systems

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

To access these materials online click on their titles in the table below or use your web browser to search for their titles. Contact the 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

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	012-2149F
Avis de demande de services de laboratoire	012-2148F
Avis de résultats d'analyse insatisfaisants et de règlement des problèmes	012-4444F
Prendre soin de votre eau potable - Un guide destiné aux membres des conseils municipaux	Site Web
Marche à suivre pour désinfecter l'eau potable 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



APPENDIX F

Safe Drinking Water Act, 2022 Part III General Requirements

Minister's directive

9 (1) The Minister may issue a written directive consistent with the purposes of this Act that relates to the exercise of a power or the performance of a duty by a person or entity appointed, designated or established under this Act. 2002, c. 32, s. 9 (1).

Exception

(2) No directive shall be issued under this section that relates to the issue, granting, amendment, renewal, suspension or revocation of a particular accreditation, permit, licence, approval, certificate or order under this Act. 2002, c. 32, s. 9 (2).

Compliance

(3) Every person to whom a directive is given under subsection (1) shall comply with the directive. 2002, c. 32, s. 9 (3).

Publication

(4) Every directive issued under this section comes into effect on the day notice of the directive is given in the Registry. 2002, c. 32, s. 9 (4).

Legislation Act, 2006, Part III

(5) Part III (Regulations) of the *Legislation Act, 2006* does not apply to a directive issued under this section. 2002, c. 32, s. 9 (5); 2006, c. 21, Sched. F, s. 136 (1).

Section Amendments with date in force (d/m/y) [+]**PART III
GENERAL REQUIREMENTS****Potable water**

10 Despite any other Act, a requirement that water be "potable" in any Act, regulation, order or other document issued under the authority of any Act or in a municipal by-law shall be deemed to be a requirement to meet, at a minimum, the requirements of the prescribed drinking water quality standards. 2002, c. 32, s. 10.

Duties of owners and operating authorities

11 (1) Every owner of a municipal drinking water system or a regulated non-municipal drinking water system and, if an operating authority is responsible for the operation of the system, the operating authority for the system shall ensure the following:

1. That all water provided by the system to the point where the system is connected to a user's plumbing system meets the requirements of the prescribed drinking water quality standards.
2. That, at all times in which it is in service, the drinking water system,
 - i. is operated in accordance with the requirements under this Act,
 - ii. is maintained in a fit state of repair, and
 - iii. satisfies the requirements of the standards prescribed for the system or the class of systems to which the system belongs.
3. That the drinking water system is operated by persons having the training or expertise for their operating functions that is required by the regulations and the licence or approval issued or granted for the system under this Act.
4. That all sampling, testing and monitoring requirements under this Act that relate to the drinking water system are complied with.
5. That personnel at the drinking water system are under the supervision of persons having the prescribed qualifications.
6. That the persons who carry out functions in relation to the drinking water system comply with such reporting requirements as may be prescribed or that are required by the conditions in the licence or approval issued or granted for the system under this Act. 2002, c. 32, s. 11 (1).

Duty of owner to report to public

(2) If an owner of a municipal drinking water system or regulated non-municipal drinking water system is required by the regulations to report on any matter to the public, the owner shall report in accordance with the regulations. 2002, c. 32, s. 11 (2).

Out-of-province drinking water testing service

(3) No owner or operating authority of a municipal drinking water system or regulated non-municipal drinking water system shall obtain a drinking water testing service from a person who is not licensed under Part VII to offer or provide the service unless,

- (a) the laboratory at which the testing is to be conducted is located outside Ontario and is an eligible laboratory in respect of the particular tests to be conducted;
- (b) the person agrees in writing to comply with section 18 and any prescribed requirements; and
- (c) the owner or operating authority provides to the Director appointed for the purposes of Part VII,
 - (i) written notice of the use of the testing service,
 - (ii) a copy of the accreditation referred to in clause (4) (a), if applicable, and
 - (iii) a copy of the agreement referred to in clause (b). 2002, c. 32, s. 11 (3).

Eligible laboratory

(4) For the purposes of this section, a laboratory located outside Ontario is an eligible laboratory in respect of a particular test if the laboratory is on a list maintained by the Director appointed for the purposes of Part VII and,

- (a) the laboratory is accredited for the conduct of the test and, in the Director's opinion, the accreditation is equivalent to the accreditation standard of an accreditation body for drinking water testing under Part VII; or
- (b) in the Director's opinion,
 - (i) it is desirable for the purposes of this Act that the test be available,
 - (ii) there is no laboratory, or there are insufficient laboratories, in the area for the conduct of the test under a licence issued under Part VII, and
 - (iii) the person who is to provide the drinking water testing service will be capable of conducting the test at the laboratory, or causing the test to be conducted there. 2002, c. 32, s. 11 (4).

List of out-of-province laboratories

(5) For the purposes of subsection (4), a laboratory may be added to the list maintained by the Director, and may be retained on the list, only if,

- (a) any fee required under this Act has been paid in respect of the laboratory; and
- (b) the laboratory complies with the prescribed requirements. 2002, c. 32, s. 11 (5).

Director's direction

(6) The Director may issue a direction to one or more owners or operating authorities prohibiting them from obtaining drinking water testing services from a laboratory located outside Ontario if the Director has reason to believe that the laboratory has ceased to be an eligible laboratory or has failed to comply with section 18 or a prescribed requirement. 2002, c. 32, s. 11 (6).

Same

(7) Every person who receives a direction under subsection (6) shall comply with the direction and advise the Director in writing of the alternative laboratory from which the person will obtain drinking water testing services. 2002, c. 32, s. 11 (7).

Revocation of direction

(8) The Director may revoke a direction issued under subsection (6) if he or she is of the opinion that the reasons for issuing the direction no longer exist. 2002, c. 32, s. 11 (8).

Operator's certificate

12 (1) No person shall operate a municipal drinking water system or a regulated non-municipal drinking water system unless the person holds a valid operator's certificate issued in accordance with the regulations. 2002, c. 32, s. 12 (1).

(2)-(4) REPEALED: 2017, c. 2, Sched. 11, s. 6 (2).

Section Amendments with date in force (d/m/y) [+]**Duty to have accredited operating authority**

13 (1) Every owner of a municipal drinking water system shall ensure that an accredited operating authority is in charge of the system at all times on and after the day specified in the regulations for the municipality, the system or the owner of the system. 2002, c. 32, s. 13 (1).

Same

(2) If the Minister makes a regulation requiring an accredited operating authority to be in charge of a non-municipal drinking water system, the owner of the system shall ensure that an accredited operating authority is in charge of the system at all times. 2002, c. 32, s. 13 (2).

Agreement with accredited operating authority

14 (1) If an accredited operating authority is in charge of a drinking water system and it is not the owner of the system, the accredited operating authority and the owner of the system shall enter into an agreement that contains the following:

1. A description of the system or the parts of the system for which the operating authority is responsible.
2. A description of the respective responsibilities of the owner and the operating authority to ensure that the operation, maintenance, management and alteration of the system comply with this Act, the regulations, any order under this Act and the conditions in,
 - i. the drinking water works permit and the municipal drinking water licence for the system, in the case of a municipal drinking water system, or
 - ii. the approval for the system, in the case of a non-municipal drinking water system.
3. A description of the respective responsibilities of the owner and the accredited operating authority in the event a deficiency is determined to exist or an emergency occurs.
4. A description of the respective responsibilities of the owner and the accredited operating authority to ensure that the operational plans for the system are reviewed and revised appropriately and that both parties are informed of all revisions.
5. Any other provisions required by the regulations. 2002, c. 32, s. 14 (1).

Delegation of duty

(2) If an owner of a drinking water system enters into an agreement with an accredited operating authority, the owner may, in the agreement, delegate a duty imposed on the owner under this Act to the accredited operating authority. 2002, c. 32, s. 14 (2).

Exception

(3) A delegation referred to in subsection (2) shall not relieve the owner of the drinking water system from the duty to comply with section 19 or the duty,

- (a) to ensure that the accredited operating authority carries out its duties under this Act and the agreement in a competent and diligent manner while it is in charge of the system; and

- (b) upon discovery that the accredited operating authority is failing to act in accordance with clause (a), to take all reasonable steps to ensure that the operation of the system complies with the requirements under this Act. 2002, c. 32, s. 14 (3).

Agreement to be made public

(4) The contents of every agreement referred to in subsection (1) between an owner of a drinking water system and an accredited operating authority shall be made public by the owner of the system in accordance with the requirements prescribed by the Minister. 2002, c. 32, s. 14 (4).

Directions, operational plans

15 (1) The Director shall, on or before the prescribed date, issue directions governing the preparation and content of operational plans for municipal drinking water systems and may issue such additional directions as the Director considers necessary for the purposes of this section. 2002, c. 32, s. 15 (1).

Same

(2) If the Minister makes a regulation requiring a non-municipal drinking water system or a class of non-municipal drinking water systems to have operational plans, the Director shall, on or before the date prescribed by the Minister, issue directions governing the preparation and content of operational plans for the system or systems. 2002, c. 32, s. 15 (2).

Same

(3) The Director may amend, revoke or replace a direction issued under this section. 2002, c. 32, s. 15 (3).

Content of direction

(4) The direction shall include,

- (a) minimum content requirements for operational plans;
- (b) rules respecting the retention of copies of versions of operational plans;
- (c) rules respecting the public disclosure of the contents of operational plans; and
- (d) such other requirements as the Director considers necessary for the purposes of this Act and the regulations. 2002, c. 32, s. 15 (4).

Same

(5) A direction issued under this section may,

- (a) be general or limited in its application;
- (b) apply in respect of any class of drinking water systems;
- (c) require the preparation of operational plans for a treatment system, a distribution system or any part of either or both of them. 2002, c. 32, s. 15 (5).

Publication

(6) A direction, amendment to a direction or revocation of a direction takes effect when a notice of the direction, amendment or revocation, as the case may be, is given in the Registry. 2002, c. 32, s. 15 (6).

Legislation Act, 2006, Part III

(7) Part III (Regulations) of the *Legislation Act, 2006* does not apply to a direction issued under this section. 2002, c. 32, s. 15 (7); 2006, c. 21, Sched. F, s. 132 (1).

Section Amendments with date in force (d/m/y) [+]**Operational plans**

16 (1) If operational plans are required for a drinking water system under this Act, every owner and accredited operational authority of the system shall,

- (a) ensure that the plans comply with such directions issued under section 15 that apply in respect of the system; and
- (b) make public the contents of the operating plans in accordance with the Director's directions. 2002, c. 32, s. 16 (1).

Submission of plans, municipal drinking water system

(2) Every owner of a municipal drinking water system shall provide a copy of all operational plans for the system to the Director on or before the day prescribed by the regulations for the municipality, the system or the owner of the system. 2002, c. 32, s. 16 (2).

Review of plans

(3) The Director shall review the operational plans for the municipal drinking water system and shall issue a notice,

- (a) accepting the plans if the Director is satisfied that the plans satisfy the directions; or
- (b) rejecting the plans for the reasons set out in the notice, if the Director is not satisfied that the plans satisfy the directions. 2002, c. 32, s. 16 (3).

Resubmission of plans

(4) The owner of a municipal drinking water system whose operational plans are rejected by the Director shall revise and resubmit the revised plans to the Director in accordance with the directions specified in the notice. 2002, c. 32, s. 16 (4).

Ownership of operational plans

17 (1) All operational plans for a drinking water system remain the property of the owner of the system, irrespective of who prepares or revises the plans. 2002, c. 32, s. 17 (1).

Retention of plans

(2) Every accredited operating authority of a drinking water system for which operational plans are required under this Act shall retain copies of the operational plans for the system in accordance with the Director's directions under section 15. 2002, c. 32, s. 17 (2).

Same

(3) Upon termination of an agreement between the owner and the accredited operating authority of a system, the accredited operating authority shall ensure that the owner has copies of the most recently prepared and revised operational plans for the system. 2002, c. 32, s. 17 (3).

Duty to report adverse test result

18 (1) Each of the following persons shall report every prescribed adverse result of a drinking water test conducted on any waters from a municipal drinking water system or a regulated non-municipal drinking water system to the Ministry and the medical officer of health immediately after the adverse result is obtained:

1. The operating authority responsible for the system or, if there is no operating authority responsible for the system, the owner of the system.
2. The person operating the laboratory at which the adverse result was obtained. 2002, c. 32, s. 18 (1); 2007, c. 10, Sched. D, s. 3 (6).

Same

(2) A report under subsection (1) shall be made in accordance with the regulations. 2002, c. 32, s. 18 (2).

Duty to report to the owner

(3) If an operating authority is required to report an adverse test result under subsection (1), the operating authority shall also immediately report the adverse test result to the owner of the system for which the operating authority is responsible. 2007, c. 10, Sched. D, s. 3 (7).

Duty of laboratory to report

(4) Every person operating a laboratory who is required to report an adverse test result under subsection (1) shall also notify the operating authority responsible for the system or, if there is no operating authority responsible for the system, the owner of the system, of every adverse test result relating to the system, immediately after the adverse result is obtained. 2007, c. 10, Sched. D, s. 3 (7).

Section Amendments with date in force (d/m/y) [+]**Duty to report adverse test result**

18.1 (1) The person operating the laboratory at which an adverse result was obtained shall report every prescribed adverse result of a drinking water test conducted on any waters from a small drinking water system within the meaning of the *Health Protection and Promotion Act* to the Ministry of Health and Long-Term Care and the medical officer of health immediately after the adverse result is obtained. 2007, c. 10, Sched. D, s. 3 (8).

Same

(2) A report under subsection (1) shall be made in accordance with the regulations. 2007, c. 10, Sched. D, s. 3 (8).

Duty of laboratory to report

(3) Every person operating a laboratory who is required to report an adverse test result under subsection (1) shall also notify the operator responsible for the system or, if there is no operator responsible for the system, the owner of the system, of every adverse test result relating to the system, immediately after the adverse result is obtained. 2007, c. 10, Sched. D, s. 3 (8).

Section Amendments with date in force (d/m/y) [+]**Standard of care, municipal drinking water system**

19 (1) Each of the persons listed in subsection (2) shall,

- (a) exercise the level of care, diligence and skill in respect of a municipal drinking water system that a reasonably prudent person would be expected to exercise in a similar situation; and
- (b) act honestly, competently and with integrity, with a view to ensuring the protection and safety of the users of the municipal drinking water system. 2002, c. 32, s. 19 (1).

Same

(2) The following are the persons listed for the purposes of subsection (1):

- 1. The owner of the municipal drinking water system.
- 2. If the municipal drinking water system is owned by a corporation other than a municipality, every officer and director of the corporation.
- 3. If the system is owned by a municipality, every person who, on behalf of the municipality, oversees the accredited operating authority of the system or exercises decision-making authority over the system. 2002, c. 32, s. 19 (2).

Offence

(3) Every person under a duty described in subsection (1) who fails to carry out that duty is guilty of an offence. 2002, c. 32, s. 19 (3).

Same

(4) A person may be convicted of an offence under this section in respect of a municipal drinking water system whether or not the owner of the system is prosecuted or convicted. 2002, c. 32, s. 19 (4).

Reliance on experts

(5) A person shall not be considered to have failed to carry out a duty described in subsection (1) in any circumstance in which the person relies in good faith on a report of an engineer, lawyer, accountant or other person whose professional qualifications lend credibility to the report. 2002, c. 32, s. 19 (5).

Prohibition

20 (1) No person shall cause or permit any thing to enter a drinking water system if it could result in,

- (a) a drinking water health hazard;
- (b) a contravention of a prescribed standard; or
- (c) interference with the normal operation of the system. 2002, c. 32, s. 20 (1).

Exception

(2) Subsection (1) does not apply to prohibit activities that are carried out,

- (a) in the course of the proper operation, maintenance, repair or alteration of a drinking water system; or
- (b) under a statutory authority or for the purposes of complying with a statutory requirement. 2002, c. 32, s. 20 (2).

Dilution no defence

(3) For the purposes of prosecuting the offence of contravening subsection (1), it is not necessary to prove that the thing, if it was diluted when or after it entered the system, continued to result in or could have resulted in a drinking water health hazard. 2002, c. 32, s. 20 (3).

PART IV ACCREDITATION OF OPERATING AUTHORITIES

Quality Management Standard

21 (1) On or before the first anniversary of the coming into force of this section, the Minister shall approve a Quality Management Standard for drinking water systems. 2002, c. 32, s. 21 (1).

Revisions

(2) The Minister may approve such revisions to the Quality Management Standard as the Minister considers advisable. 2002, c. 32, s. 21 (2).

Publication

(3) The Quality Management Standard, including any revisions to it, comes into effect upon the Ministry giving a notice of the Standard or revision in the Registry. 2002, c. 32, s. 21 (3).

Same

(4) If the Minister proposes to make a regulation requiring accredited operating authorities to be in charge of non-municipal drinking water systems, the Minister may approve revisions to the Quality Management Standard that include standards relating to non-municipal drinking water systems. 2002, c. 32, s. 21 (4).

Application of Standard

(5) The Quality Management Standard may,

- (a) be general or limited in its application; and
- (b) apply in respect of any class of activity, matter, person or thing. 2002, c. 32, s. 21 (5).

Same

(6) A class mentioned in clause (5) (b) may be defined with respect to any attribute, quality, characteristic or combination of them and may be defined to consist of or to include or exclude any specified member of a class whether or not the member has the same attributes, qualities or characteristics as other members of the class. 2002, c. 32, s. 21 (6).

Adoption by reference

(7) The Quality Management Standard may adopt by reference, in whole or in part, with such changes as the Minister considers necessary, any document, including a code, formula, standard, protocol or procedure. 2002, c. 32, s. 21 (7).

Amendments to codes, etc.

(8) The power to adopt by reference and require conformity with a document in subsection (7) includes the power to adopt the document as it may be amended from time to time after it is adopted. 2002, c. 32, s. 21 (8).

Legislation Act, 2006, Part III

(9) Part III (Regulations) of the *Legislation Act, 2006* does not apply to the approval of the Quality Management Standard or to the approval of revisions to the Standard. 2002, c. 32, s. 21 (9); 2006, c. 21, Sched. F, s. 132 (2).

Section Amendments with date in force (d/m/y) [+]**Accreditation body for operating authorities**

22 (1) One or more accreditation bodies for operating authorities shall be designated or established for the purposes of administering programs for the accreditation of operating authorities for drinking water systems. 2002, c. 32, s. 22 (1).

Designation by agreement

(2) The Minister may designate a person as an accreditation body for operating authorities by entering into an accreditation agreement under this Part with the person. 2002, c. 32, s. 22 (2).

Same

(3) A person who enters into an accreditation agreement under this Part ceases to be designated as an accreditation body for operating authorities on the termination of the agreement. 2002, c. 32, s. 22 (3).

Designation or establishment by regulation

(4) One or more accreditation bodies for operating authorities may be designated or established by the regulations, whether or not the Minister enters into an accreditation agreement under this Part. 2002, c. 32, s. 22 (4).

No action on termination

(5) No action or other proceeding shall be commenced in respect of,

- (a) the termination by the Minister of an accreditation agreement; or
- (b) the revocation of a regulation or a provision of a regulation designating or establishing an accreditation body for operating authorities. 2002, c. 32, s. 22 (5).

Obligations of accreditation body

23 (1) Every accreditation body for operating authorities shall exercise and perform its powers and duties in accordance with the requirements under this Act and its accreditation agreement, if any. 2002, c. 32, s. 23 (1).

Audit reports

(2) Every accreditation body for operating authorities shall,

- (a) provide a copy of the report of any audit required by the accreditation body to the Director within the time period specified by the Director; and
- (b) make public the results of any audit required by the accreditation body, in a form and manner specified by the Director. 2002, c. 32, s. 23 (2).

Notice of proposed suspensions, revocations

(3) Every accreditation body for operating authorities shall, within the time specified by the Director,

- (a) notify the Director in writing of any proposed suspension or revocation of accreditation of an accredited operating authority, including the reasons for the proposed action; and
- (b) notify the Director in writing if the accreditation body implements the proposed suspension or revocation mentioned in clause (a). 2002, c. 32, s. 23 (3).

Accreditation agreement

24 (1) The Minister may enter into an accreditation agreement with a person and every accreditation agreement shall include the following:

1. The requirement that the person establish and administer a program based on the Quality Management Standard for drinking water systems for the accreditation of operating authorities for drinking water systems.
2. The terms on which the accreditation program is to be administered.
3. The requirement that the person administer an audit program to audit the level of conformity by accredited operating authorities with the Quality Management Standard.
4. The terms and conditions for the administration of the audit program including,
 - i. the frequency of audits,
 - ii. the required qualifications of the auditors,
 - iii. the powers and duties of the auditors,
 - iv. the types of matters to be audited and the requirements for reporting the auditors' findings and recommendations,
 - v. the requirement that copies of every audit report in respect of a system be provided to the Director and the operating authority and owner of the system and the results be made available to the public.
5. The authority for and procedures governing the granting, suspending and revocation of accreditation.
6. Requirements for the giving of notice in writing of a proposed suspension or revocation of accreditation of an accredited operating authority to the Director, the appropriate municipality or municipalities and the owner of the relevant drinking water system, if the system is not owned by a municipality, including the manner for giving notice and the requirement that the notice set out the reasons for the proposed action.
7. The entitlement of the Minister to review or audit, at such time or times as the Minister considers advisable, the performance of the person under the agreement, including the conduct and results of audits under the agreement.
8. The requirement that the person obtain and maintain specified kinds and amounts of insurance.
9. Provisions governing the amendment and termination of the agreement. 2002, c. 32, s. 24 (1).

Same

(2) Subsection (1) does not prohibit the inclusion in the agreement of such other provisions as the Minister considers advisable that are consistent with the provisions described in subsection (1) and the purposes of the agreement. 2002, c. 32, s. 24 (2).

Compliance with audit

25 (1) Every owner and accredited operating authority of a drinking water system shall,

- (a) submit to and assist with all audits required by an accreditation body for operating authorities; and
- (b) consent to the release to the Director of all audit reports relating to the system and the release to the public of the results of the audits. 2002, c. 32, s. 25 (1).

Exception

(2) Subsection (1) does not apply in respect of a non-municipal drinking water system unless the regulations require an accredited operating authority to be in charge of the system. 2002, c. 32, s. 25 (2).

Report by auditor of violations

26 If an auditor, in the course of an audit, becomes aware of a violation of this Act, the regulations, a drinking water works permit, a municipal drinking water licence, an approval or order under this Act, the auditor shall report the violation to the Director as soon as practicable, and shall include a summary of his or her observations in relation to the violation in his or her report. 2002, c. 32, s. 26.

Obligation to report suspension or revocation of accreditation

27 If an operating authority's accreditation under this Part is suspended or revoked by an accreditation body, the operating authority shall, immediately after the suspension or revocation,

- (a) notify all owners of drinking water systems, of which the operating authority is in charge, of the suspension or revocation; and
- (b) provide a copy of the accreditation body's order or decision to suspend or revoke the accreditation to each owner described in clause (a). 2002, c. 32, s. 27.

Not an agent of the Crown

28 (1) Despite the *Crown Agency Act*, no accreditation body for operating authorities is or shall hold itself out as an agent of Her Majesty for any purpose. 2002, c. 32, s. 28 (1).

Crown not liable

(2) No action or other proceeding shall be instituted against the Crown, the Minister or any employee in the Ministry,

- (a) for any act done by an accreditation body for operating authorities in the execution or intended execution of a power or duty under this Act or its accreditation agreement, if any, or for an alleged neglect or default in the execution of such a power or duty; or
- (b) for any tort committed by an accreditation body for operating authorities or its employee or agent in relation to a power or duty under this Act or its accreditation agreement, if any. 2002, c. 32, s. 28 (2); 2006, c. 35, Sched. C, s. 119 (3).

Section Amendments with date in force (d/m/y) [+]**Annual reports, etc., by accreditation bodies**

29 (1) Every accreditation body for operating authorities shall report annually to the Minister on its activities over the previous year with respect to the execution of its powers and duties under this Act and its accreditation agreement, if any. 2002, c. 32, s. 29 (1).

Additional reports

(2) Every accreditation body for operating authorities shall provide such additional reports to the Minister as the Minister may require or as required by its accreditation agreement, if any, and the Minister shall make public a copy of the report in a form and manner the Minister considers appropriate. 2002, c. 32, s. 29 (2).

PART V MUNICIPAL DRINKING WATER SYSTEMS

Financial plans**Definition**

30 In this Part,

"financial plans" means financial plans that satisfy the requirements prescribed by the Minister. 2017, c. 2, Sched. 11, s. 6 (3).

Section Amendments with date in force (d/m/y) [+]**Requirement for approval or permit and licence**

31 (1) No person shall,

- (a) establish a new municipal drinking water system or replace or carry out an alteration to a municipal drinking water system except under the authority of and in accordance with an approval under this Part or a drinking water works permit; or

- (b) use or operate a municipal drinking water system that was established before or after this section comes into force except under the authority of and in accordance with an approval under this Part or municipal drinking water licence. 2002, c. 32, s. 31 (1).

Deemed approval under this Part

(2) An approval granted under section 52 of the *Ontario Water Resources Act* for a municipal drinking water system shall be deemed to be an approval under this Part for the system and may be amended, suspended, reinstated and revoked as if it were an approval granted by the Director under this Part. 2002, c. 32, s. 31 (2).

Exception, testing

(3) Subsection (1) does not apply if,

- (a) the operator of the system is conducting a test or experiment on the system;
- (b) the water under treatment in the test or experiment is not distributed to users of the system; and
- (c) no substance is discharged from the treatment system into the natural environment during the test or experiment. 2002, c. 32, s. 31 (3).

Exception, prescribed system

(4) Subsection (1) does not apply to a municipal drinking water system if the system is a prescribed system or is a member of a prescribed class of systems. 2002, c. 32, s. 31 (4).

Applications**New system**

32 (1) A person who proposes to establish a new municipal drinking water system to which subsection 31 (1) will apply or to replace a municipal drinking water system with a new system to which that subsection will apply shall make an application to the Director,

- (a) for an approval under this Part if the application is made before the day prescribed for the purposes of section 33 for the municipality, the proposed system or the owner of the system; or
- (b) for a drinking water works permit and a municipal drinking water licence for the proposed system if the application is made on or after the day referred to in clause (a). 2002, c. 32, s. 32 (1).

Alteration to system

(2) The owner of a municipal drinking water system who proposes to carry out an alteration to the system shall apply to the Director,

- (a) for an amendment to the approval under this Part for the system, if the proposed alteration will be carried out before the owner of the system is required to obtain a drinking water works permit for the system under this Part and the approval does not authorize the alteration; or
- (b) for an amendment to the drinking water works permit for the system, if a permit has been issued for the system and the permit does not authorize the alteration. 2002, c. 32, s. 32 (2).

Amendment, revocation

(3) The owner of a municipal drinking water system may apply to the Director for,

- (a) an amendment to the approval under this Part or the drinking water works permit or municipal drinking water licence for the system; or
- (b) the revocation of the approval under this Part or the drinking water works permit or municipal drinking water licence for the system. 2002, c. 32, s. 32 (3).

Licence renewal

(4) The owner of a municipal drinking water system for which a municipal drinking water licence has been issued may apply to the Director for a renewal of the licence on or before the day specified in the licence as the deadline for a renewal application. 2002, c. 32, s. 32 (4).

Requirements of application

(5) An application under this section must satisfy the following requirements:

1. The application must be made in the manner and form approved by the Director and contain the information required by the Director.
2. In the case of an application for a licence, the application must include,
 - i. a copy of all current operational plans relating to the system, as of the date of the application, prepared in accordance with the Director's directions for operational plans,
 - ii. proof satisfactory to the Director that the financial plans for the system satisfy the requirements under this Act if the Minister prescribes requirements referred to in the definition of "financial plans" in section 30,
 - iii. proof satisfactory to the Director that an accredited operating authority will be in charge of the system, and
 - iv. proof satisfactory to the Director that a permit to take water has been issued under the *Ontario Water Resources Act* that,
 - A. authorizes the system to take water, if water will be taken by the system from a raw water supply and the permit is required under the *Ontario Water Resources Act* in order to take the water, and
 - B. authorizes the system to transfer water between Great Lakes watersheds as defined in section 34.5 of the *Ontario Water Resources Act*, if water will be transferred by the system between Great Lakes watersheds as defined in that section and the permit is required under that Act in order to transfer the water.
3. All fees required on the application must be submitted to the Director as part of the application. 2002, c. 32, s. 32 (5); 2007, c. 12, s. 2 (1); 2017, c. 2, Sched. 11, s. 6 (4).

Additional information

(6) In connection with an application under this section, the Director may require the applicant to do one or more of the following:

1. Submit plans, specifications, engineers' reports and other information and documents relating to the municipal drinking water system.
2. Carry out tests or experiments relating to the system or the raw water supply for the system, and report on the results. 2002, c. 32, s. 32 (6).

Section Amendments with date in force (d/m/y) [+]**Requirement to apply for permit and licence**

33 The owner of a municipal drinking water system shall apply to the Director, on or before the day prescribed for the municipality, the system or the owner of the system, for a drinking water works permit and a municipal drinking water licence for the system. 2002, c. 32, s. 33.

Failure to apply for required approval, permit or licence

34 If a person proceeds to establish, carry out an alteration to or operate a municipal drinking water system without applying for an approval under this Part, a drinking water works permit, an amendment to an approval, drinking water works permit or municipal drinking water licence, as required by this Part, and the person has failed to comply with an order issued under Part IX requiring the person to submit an application for it, the Director may,

- (a) retain such experts and obtain such facilities, at the person's expense, as the Director considers necessary for the investigation of the municipal drinking water system and the raw water supply;
- (b) require the person to produce all documents under the person's control that relate to the drinking water system; and

- (c) grant or amend an approval or issue or amend a drinking water works permit and municipal drinking water licence for the system in accordance with his or her authority under this Part. 2002, c. 32, s. 34.

Late application

35 If an order is issued under Part IX to a person requiring the submission of an application for an approval under this Part, a drinking water works permit, a municipal drinking water licence or an amendment to an approval, permit or licence for a municipal drinking water system by reason of the person's failure to make an application in accordance with the requirements under this Act, or if the Director considers it necessary for the purposes of this Act,

- (a) the Director may accept and consider a late application as though it were made within the time specified under this Part; and
- (b) in the case of an approval or drinking water works permit, if the Director decides to grant or amend the approval or issue or amend the permit, the Director may impose as a condition the requirement that the person reverse any alteration that was made to the system that was not previously authorized by the Director in an approval or drinking water works permit. 2002, c. 32, s. 35.

APPROVALS FOR MUNICIPAL DRINKING WATER SYSTEMS

Approval

36 (1) After consideration of an application for an approval or an amendment to an approval, the Director shall, as he or she considers necessary for the purposes of this Act,

- (a) on an application for an approval under this Part, grant the approval with such conditions as the Director may impose under section 37;
- (b) on an application for the amendment of an approval under this Part, amend the approval to impose, vary or remove a condition, subject to subsection 37 (2); or
- (c) refuse to grant or amend the approval, as the case may be. 2002, c. 32, s. 36 (1).

Same

(2) An approval granted under this section for a system that was established before this section came into force may deal with any works associated with the system. 2002, c. 32, s. 36 (2).

Fragmentation

(3) Despite subsection (1), the Director shall not grant an approval or amend an approval to authorize the fragmentation of a municipal drinking water system or part of the system unless,

- (a) the Director has consulted the medical officer of health concerning the proposed fragmentation;
- (b) the owner of the system proves to the satisfaction of the Director that the owner gave written notice in a form and manner approved by the Director to each user of the system who would cease to be served by a municipal drinking water system if the fragmentation proceeds; and
- (c) the owner of the system demonstrates to the Director's satisfaction that the fragmentation will not expose users of the fragmented system to a drinking water health hazard and will not endanger the natural environment. 2002, c. 32, s. 36 (3).

Expiry of approval

(4) An approval for a municipal drinking water system expires,

- (a) on the day a municipal drinking water licence is issued for the system, if the owner makes an application for a drinking water works permit and municipal drinking water licence in accordance with section 33; or
- (b) on the day after the day the owner of the system is required under section 33 to apply for a drinking water works permit and a municipal drinking water licence for the system, if the owner fails to make the application on or before the day the application is required. 2002, c. 32, s. 36 (4).

Extension

(5) The Director may authorize an extension of the expiry date of an approval for a municipal drinking water system if an application for a drinking water works permit and a municipal drinking water licence for the system has been received by the day required under section 33 and the decision on the application is not made on or before the expiry date. 2002, c. 32, s. 36 (5).

Approval conditions and Director's amendments

37 (1) The Director may,

- (a) impose such conditions in an approval at the time the approval is granted as the Director considers necessary for the purposes of this Act; and
- (b) on his or her own initiative, amend the approval to impose, vary or remove conditions in the approval at any time after it is granted, if the Director considers it necessary for the purposes of this Act. 2002, c. 32, s. 37 (1).

Same

(2) The Director may impose any condition in an approval that may be imposed in a drinking water works permit or a municipal drinking water licence and may include an expiry date for the approval as a condition in the approval. 2002, c. 32, s. 37 (2).

Application of *Environmental Assessment Act*

(3) Subsections 12.2 (2) and 15.1.2 (2) of the *Environmental Assessment Act* does not prohibit a Director from imposing a condition mentioned in paragraph 3 of subsection 41 (2) in an approval, but the other provisions of that Act continue to apply to any future alterations to a municipal drinking water system that the Director may specify in an approval. 2002, c. 32, s. 37 (3); 2020, c. 18, Sched. 6, s. 65 (1).

Note: On a day to be named by proclamation of the Lieutenant Governor, subsection 37 (3) of the Act is amended by striking out "Subsections 12.2 (2) and 15.1.2 (2)" at the beginning and substituting "Subsections 15.1.2 (2), 17.27 (2) and 17.30 (2)". (See: 2020, c. 18, Sched. 6, s. 65 (2))

Note: On a day to be named by proclamation of the Lieutenant Governor, subsection 37 (3) of the Act is amended by striking out "15.1.2 (2)". (See: 2020, c. 18, Sched. 6, s. 65 (3))

Certificate of compliance

(4) If a condition of an approval for a municipal drinking water system so provides, no owner of the system shall put into service any works, equipment, mechanism or thing specified in the approval until the owner or the owner's designate has given the Director a certificate of compliance in such form as the Director requires. 2002, c. 32, s. 37 (4).

Permitting inspections

(5) It is a condition in every approval under this Part, whether or not it is specified in the approval, that the owner and every other operator of the system shall permit provincial officers to conduct inspections authorized under,

- (a) this Act;
- (b) section 156, 156.1 or 158 of the *Environmental Protection Act*;
- (c) section 13, 14 or 16 of the *Nutrient Management Act, 2002*;
- (d) section 15, 15.1 or 17 of the *Ontario Water Resources Act*;
- (e) section 19, 19.1 or 20 of the *Pesticides Act*;
- (f) section 15 or 18 of the *Toxics Reduction Act, 2009*. 2002, c. 32, s. 37 (5); 2009, c. 19, s. 72 (1).

Section Amendments with date in force (d/m/y) [+]**Condition in approval, relief from regulatory requirements****Definition**

38 (1) In this section,

“regulatory requirement” means a prescribed requirement relating to,

- (a) the sampling, testing or monitoring of water quality in a municipal drinking water system or the reporting of the results, or
- (b) the treatment of water in a municipal drinking water system. 2002, c. 32, s. 38 (1).

Condition, relief from regulatory requirement

(2) Subject to subsection (3) and despite any other provision of this Act, the Director may impose a condition in an approval under section 37 that,

- (a) provides relief from the duty of strict compliance with a regulatory requirement; or
- (b) imposes a condition in the approval, in place of a regulatory requirement, that is less onerous than the regulatory requirement. 2002, c. 32, s. 38 (2).

Exception

(3) The Director shall not impose a condition described in subsection (2) in an approval granted under section 37 unless,

- (a) the owner of the municipal drinking water system has applied in writing to the Director for relief from the regulatory requirement;
- (b) the regulations do not prohibit the Director from including the condition in the approval under the circumstances relating to the particular system;
- (c) the application includes, if required by the regulations, an assessment prepared in accordance with the regulations that demonstrates that providing the relief sought will not result in a drinking water health hazard and the Director agrees with the conclusions of the assessment;
- (d) the owner has conducted public consultations on the application, if any are required by the regulations, and the public consultations, if required, have been conducted in accordance with the prescribed requirements; and
- (e) the owner has obtained all consents from individuals that are required by the regulations before the relief may be given. 2002, c. 32, s. 38 (3).

Suspension, revocation of approval

39 (1) The Director may suspend an approval for a municipal drinking water system if,

- (a) the Director is of the opinion that the continuing operation of the system will result in a drinking water health hazard; or
- (b) the owner of the system has failed or refused to correct a deficiency associated with the system. 2002, c. 32, s. 39 (1).

Reinstatement after suspension

(2) The Director may reinstate an approval for a municipal drinking water system if the reason for suspending the approval no longer exists and there are no additional grounds for suspending the approval. 2002, c. 32, s. 39 (2).

Revocation of approval

(3) The Director may revoke an approval for a municipal drinking water system granted under this Part if,

- (a) the approval was issued on the basis of false information or information that was incomplete in a material respect;
- (b) the approval was issued in error or to the wrong person;
- (c) the owner of the system has decommissioned the system in accordance with the conditions in the approval;
- (d) the owner of the system applies for revocation;
- (e) at least 365 days have passed since the approval was issued, no application for an extension of any deadlines specified in the approval has been received by the Director and the Director has reasonable grounds for believing that,
 - (i) the establishment of the system has not been significantly advanced since the approval was issued, or
 - (ii) work to establish the system has been essentially discontinued for a period of at least 365 days; or

- (f) the approval has been suspended. 2002, c. 32, s. 39 (3).

DRINKING WATER WORKS PERMITS

Issue and amendment of permit

40 (1) After consideration of an application for a drinking water works permit under this Part or an amendment to a permit, the Director shall, as he or she considers necessary for the purposes of this Act,

- (a) on an application for the issue of a permit, issue the permit with such conditions as the Director may impose under section 41;
- (b) on an application for the amendment of a permit, amend the permit to impose, vary or remove a condition, including a condition described in subsection 41 (2); or
- (c) refuse to issue or amend the permit, as the case may be. 2002, c. 32, s. 40 (1).

Fragmentation

(2) Despite subsection (1), the Director shall not issue or amend a drinking water works permit to authorize the fragmentation of a municipal drinking water system or part of the system unless,

- (a) the Director has consulted the medical officer of health concerning the proposed fragmentation;
- (b) the owner of the system proves to the satisfaction of the Director that the owner gave written notice in a form and manner approved by the Director to each user of the system who would cease to be served by a municipal drinking water system if the fragmentation proceeds; and
- (c) the owner of the system demonstrates to the Director's satisfaction that the fragmentation will not expose users of the fragmented system to a drinking water health hazard and will not endanger the natural environment. 2002, c. 32, s. 40 (2).

Permit conditions and Director's amendments

41 (1) The Director may,

- (a) impose such conditions in a drinking water works permit at the time of issue of the permit as the Director considers necessary for the purposes of this Act; and
- (b) on his or her own initiative, amend the permit to impose, vary or remove conditions in the permit at any time after it is issued, if the Director considers it necessary for the purposes of this Act. 2002, c. 32, s. 41 (1).

Subject matter of conditions

(2) Permit conditions may include any or all of the following:

1. Requirements in relation to the construction, installation or alteration of any works, equipment, mechanism or other thing, including any specified details.
2. Requirements for compliance with design standards specified by the Director in the conditions.
3. Requirements in relation to the carrying out of future specified alterations to the system.
4. A condition specifying, for the purposes of this Act, which part or parts of the drinking water system constitute the treatment system and which part or parts constitute the distribution system.
5. A condition directing the owner of the system to decommission all or part of the system in accordance with the directions specified in the condition.
6. A condition directing the owner to restore the system to the state specified in the condition.
7. Such other requirements relating to the works, equipment, mechanism or things authorized by the permit as the Director considers necessary to ensure that other conditions in the permit are satisfied in accordance with the requirements of those conditions. 2002, c. 32, s. 41 (2).

Application of *Environmental Assessment Act*

(3) Subsections 12.2 (2) and 15.1.2 (2) of the *Environmental Assessment Act* does not prohibit a Director from imposing a condition in a drinking water works permit under paragraph 3 of subsection (2) of this section, but the other provisions of that Act continue to apply to any future alteration to the system specified in the permit. 2002, c. 32, s. 41 (3); 2020, c. 18, Sched. 6, s. 65 (4).

Note: On a day to be named by proclamation of the Lieutenant Governor, subsection 41 (3) of the Act is amended by striking out “Subsections 12.2 (2) and 15.1.2 (2)” at the beginning and substituting “Subsections 15.1.2 (2), 17.27 (2) and 17.30 (2)”. (See: 2020, c. 18, Sched. 6, s. 65 (5))

Note: On a day to be named by proclamation of the Lieutenant Governor, subsection 41 (3) of the Act is amended by striking out “15.1.2 (2)”. (See: 2020, c. 18, Sched. 6, s. 65 (6))

Relief from strict compliance

(4) Subject to subsection (5), the Director may impose a condition in a drinking water works permit that provides relief from the duty of strict compliance with a prescribed requirement and that authorizes or requires the installation of a water treatment process for a municipal drinking water system that does not comply with the prescribed treatment standards or requirements for the system. 2002, c. 32, s. 41 (4).

Same

(5) Subsection 46 (3) applies with necessary modifications in determining if the Director may impose a condition described in subsection (4) in a drinking water works permit. 2002, c. 32, s. 41 (5).

Permit applies to any works of established system

(6) A drinking water works permit issued for a municipal drinking water system that was established before this section came into force may deal with any works associated with the system. 2002, c. 32, s. 41 (6).

Section Amendments with date in force (d/m/y) [+]**Revocation of drinking water works permit**

42 The Director may revoke a drinking water works permit if,

- (a) the permit was issued on the basis of false information or information that was incomplete in a material respect;
- (b) the permit was issued in error or to the wrong person;
- (c) at least 365 days have passed since the permit was issued, no application for an extension of any deadlines specified in the permit has been received by the Director and the Director has reasonable grounds for believing that,
 - (i) the establishment of the system has not been significantly advanced since the permit was issued, or
 - (ii) work to establish the system has been essentially discontinued for a period of at least 365 days;
- (d) the owner of the system requests that the permit be revoked; or
- (e) the owner of the system has decommissioned the system in accordance with the conditions in the permit. 2002, c. 32, s. 42.

Certificate of compliance

43 If a condition of a drinking water works permit so provides, no owner of a municipal drinking water system shall put into service any works, equipment, mechanism or thing specified in the permit until the owner or the owner's designate has given the Director a certificate of compliance in such form as the Director requires. 2002, c. 32, s. 43.

MUNICIPAL DRINKING WATER LICENCES**Director's decision, municipal drinking water licence**

44 (1) After consideration of an application for a municipal drinking water licence under this Part, the Director shall issue a municipal drinking water licence to the owner of a municipal drinking water system if,

- (a) a drinking water works permit has been issued for the system;
- (b) the operational plans for the system satisfy the requirements in the Director's directions under Part III for the particular system or type of system;
- (c) the system will be operated by an accredited operating authority;
- (d) the financial plans for the system, if required, satisfy the requirements under this Act;
- (e) a permit to take water has been issued under the *Ontario Water Resources Act* that,
 - (i) authorizes the system to take water, if water will be taken by the system from a raw water supply and the permit is required under the *Ontario Water Resources Act* in order to take the water, and
 - (ii) authorizes the system to transfer water between Great Lakes watersheds as defined in section 34.5 of the *Ontario Water Resources Act*, if water will be transferred by the system between Great Lakes watersheds as defined in that section and the permit is required under that Act in order to transfer the water; and
- (f) the Director is satisfied that the system will be operated in accordance with the requirements under this Act and the conditions in the licence. 2002, c. 32, s. 44 (1); 2007, c. 12, s. 2 (2).

Information in licence

(2) A licence shall identify the following:

1. All owners of the system.
2. The accredited operating authority responsible for the operation of the system.
3. The date of issue and number of the drinking water works permit for the system.
4. The number of the most recent financial plans for the system that satisfy the requirements under this Act, as of the day the licence or renewed licence is issued, if financial plans are required for the system.
5. The number of each operational plan for the system.
6. The date of issue and number of each permit to take water, if one or more permits are required for the system. 2002, c. 32, s. 44 (2).

Expiry date

(3) The expiry date for a licence issued or renewed under this Part shall be no later than the fifth anniversary of the day of issue or renewal of the licence, and shall be set out in the licence. 2002, c. 32, s. 44 (3).

Date for application for renewal

(4) A licence or renewal under this Part shall contain a date that is the deadline for an application for renewal of the licence. 2002, c. 32, s. 44 (4).

Same

(5) The date mentioned in subsection (4) must not be less than 90 days before the date of expiry of the licence. 2002, c. 32, s. 44 (5).

Extension

(6) The Director may authorize an extension of the expiry date of a licence if an application for renewal of the licence has been received by the date described in subsection (4) and the decision on the application is not made on or before the expiry date. 2002, c. 32, s. 44 (6).

Not transferable without consent

(7) A licence is not transferable without the consent of the Director. 2002, c. 32, s. 44 (7).

Section Amendments with date in force (d/m/y) [+]**Licence conditions and amendments**

45 (1) The Director may,

- (a) impose such conditions in a municipal drinking water licence at the time of issue of the licence as the Director considers necessary for the purposes of this Act; and
- (b) amend the licence at any time after it is issued, including on his or her initiative, in order to impose, vary or remove conditions in the licence, if the Director considers it necessary for the purposes of this Act. 2002, c. 32, s. 45 (1).

Subject matter of conditions

(2) Without limiting subsection (1) and in addition to any prescribed requirements, licence conditions may include any or all of the following:

- 1. Staffing requirements.
- 2. Sampling, testing and monitoring requirements.
- 3. Treatment requirements.
- 4. Requirements relating to the management of residue from the treatment process and the management of a discharge of a substance from the treatment system into the natural environment, including standards for those discharges.
- 5. Requirements relating to drinking water quality standards.
- 6. Requirements to prevent any thing from entering the system that will result in a drinking water health hazard.
- 7. Reporting and notice requirements.
- 8. Requirements for ensuring that the operational plans for the system are revised as needed to,
 - i. satisfy the Director's directions under Part III,
 - ii. reflect any future alterations to the system permitted under the drinking water works permit for the system, and
 - iii. reflect the conditions in the licence.
- 9. The requirement to make available copies of the current operational plans and financial plans to the Director, provincial officers and auditors upon request. 2002, c. 32, s. 45 (2).

Permitting inspections

(3) It is a condition in every licence, whether or not it is specified in the licence, that the owner and accredited operating authority of the system shall permit provincial officers to conduct inspections authorized under,

- (a) this Act;
- (b) section 156, 156.1 or 158 of the *Environmental Protection Act*;
- (c) section 13, 14 or 16 of the *Nutrient Management Act, 2002*;
- (d) section 15, 15.1 or 17 of the *Ontario Water Resources Act*;
- (e) section 19, 19.1 or 20 of the *Pesticides Act*;
- (f) section 15 or 18 of the *Toxics Reduction Act, 2009*. 2002, c. 32, s. 45 (3); 2009, c. 19, s. 72 (3).

Section Amendments with date in force (d/m/y) [+]**Licence condition, relief from regulatory requirement****Definition**

46 (1) In this section,

“regulatory requirement” means a prescribed requirement relating to,

- (a) the sampling, testing or monitoring of water quality in a municipal drinking water system or the reporting of the results, or
- (b) the treatment of water in a municipal drinking water system. 2002, c. 32, s. 46 (1).

Relief from compliance

(2) Subject to subsection (3) and despite any other provision of this Act, the Director may impose a condition in a municipal drinking water licence that,

- (a) provides relief from the duty of strict compliance with a regulatory requirement; or
- (b) imposes a condition in the licence, in place of a regulatory requirement, that is less onerous than the regulatory requirement. 2002, c. 32, s. 46 (2).

Exception

(3) The Director shall not impose a condition described in subsection (2) in a licence unless,

- (a) the owner of the municipal drinking water system has applied in writing to the Director for relief from the regulatory requirement;
- (b) the regulations do not prohibit the Director from including the condition in the licence under the circumstances relating to the particular system;
- (c) the application includes, if required by the regulations, an assessment prepared in accordance with the regulations that demonstrates that providing the relief sought will not result in a drinking water health hazard and the Director agrees with the conclusions of the assessment;
- (d) the owner has conducted public consultations on the application, if any are required by the regulations, and the public consultations, if required, have been conducted in accordance with the prescribed requirements; and
- (e) the owner has obtained all consents from individuals that are required by the regulations before the relief may be given. 2002, c. 32, s. 46 (3).

Licence renewal

47 After consideration of an application to renew a municipal drinking water licence, the Director shall renew the licence if the Director is satisfied that,

- (a) the system is and will continue to be operated by an accredited operating authority;
- (b) a drinking water works permit remains in force for the system;
- (c) the operational plans for the system satisfy the requirements for the system under the Director’s directions in Part III for the particular system or type of system;
- (d) the financial plans for the system, if required, satisfy the requirements under this Act;
- (e) the system has been and will continue to be operated in accordance with the requirements under this Act and the licence; and
- (f) a permit to take water has been issued under the *Ontario Water Resources Act* that,
 - (i) authorizes the system to take water, if water will be taken by the system from a raw water supply and the permit is required under the *Ontario Water Resources Act* in order to take the water, and
 - (ii) authorizes the system to transfer water between Great Lakes watersheds as defined in section 34.5 of the *Ontario Water Resources Act*, if water will be transferred by the system between Great Lakes watersheds as defined in that section and the permit is required under that Act in order to transfer the water. 2002, c. 32, s. 47; 2007, c. 12, s. 2 (3).

Section Amendments with date in force (d/m/y) [+]

Revocation of licence

48 The Director may revoke a municipal drinking water licence if,

- (a) the licence was issued on the basis of false information or information that was incomplete in a material respect;
- (b) the licence was issued in error or to the wrong person;
- (c) the drinking water works permit for the system is revoked;
- (d) a drinking water works permit is issued to decommission the system;
- (e) the owner of the system applies for revocation;
- (f) a permit to take water issued under the *Ontario Water Resources Act* that is required for the system is revoked or expires;
- (g) the system is not operated by an accredited operating authority; or
- (h) the licence has been suspended under section 49. 2002, c. 32, s. 48.

Suspension of licence

49 The Director may suspend a municipal drinking water licence if,

- (a) the Director is of the opinion that the continuing operation of the system will result in a drinking water health hazard;
- (b) the owner of the system has failed or refused to correct a deficiency associated with the system; or
- (c) the system is not operated by an accredited operating authority. 2002, c. 32, s. 49.

Reinstatement of suspended licence

50 The Director may reinstate a licence for a system that is suspended under section 49 if the reason for suspending the licence no longer exists and there are no additional grounds for suspending the licence. 2002, c. 32, s. 50.

Transfer of municipal drinking water system

51 If a municipality transfers the ownership of a municipal drinking water system to a person other than another municipality,

- (a) the municipality shall ensure that the agreement transferring the ownership of the system includes all the provisions required to be included by the regulations to ensure continuing municipal responsibility for the system; and
- (b) the drinking water system shall be deemed to continue to be a municipal drinking water system and shall be subject to all requirements under this Act that relate to municipal drinking water systems. 2002, c. 32, s. 51.

PART VI**REGULATED NON-MUNICIPAL DRINKING WATER SYSTEMS****Prohibition, regulated non-municipal drinking water systems**

52 (1) No person shall establish, replace or operate a regulated non-municipal drinking water system or carry out an alteration to the system except,

- (a) in accordance with the prescribed requirements that apply to the system; and
- (b) under the authority of and in accordance with an approval granted by the Director under this Part, if an approval is required under the regulations for the system. 2002, c. 32, s. 52 (1).

Prohibition, fragmentation

(2) No person shall cause or permit the fragmentation of a non-municipal drinking water system that is a regulated non-municipal drinking water system for the purposes of this subsection unless the person first obtains the written consent of the Director. 2002, c. 32, s. 52 (2).

Fragmentation

(3) The Director shall not give his or her written consent under subsection (2) for the fragmentation of a non-municipal drinking water system or part of the system unless,

- (a) the Director has consulted the medical officer of health concerning the proposed fragmentation;



APPENDIX G

Colborne DWS incidents and resolutions

Date	Incident	Corrective action taken	Operator responding
January 25 2022	Water main break	Isolated valves and assisted Behn's in repair	Shawn Nielson
January 27 2022	Well 2 Fault	Cleared fault via VFD control panel	Colin MacDonald
March 2 2022	SCADA alarm low flow well 1 A	Mike Snider assisted in SCADA controls during test running of Well1A during commissioning	Colin MacDonald
March 5 2022	Low Tower alarm	Well 2 valve MV100 was unresponsive - error; VFD speed control was set to MANUAL not AUTO, reset and corrected.	Colin MacDonald
March 23 2022	Low chlorine	Alarm due to scheduled maintenance of Deplox analyzer	Colin MacDonald
May 6 2022	Flow alarms/ pressure alarms	Alarm due to scheduled maintenance and calibration of flow meter and pressure sensor	Colin MacDonald
June 1-3 2022	Tower low alarm	Alarm due to storm damaging communication and sensors equipment at water tower - Rowley electric repaired	Brian Springer
June 7 2022	Tower high alarm	SCADA error due to damaged sensor at water tower - awaiting replacement by Tower Electronics - ran wtp on pressure mode	Brian Springer
June 13 2022	Tower low alarm	SCADA error due to damaged sensor at water tower - awaiting replacement by Tower Electronics - ran wtp on pressure mode	Brian Springer / Andy Ingale
June 21 2022	Several alarms triggered	Several alarms triggered due to power transfer via generator during power outage	Brian Springer
August 17 2022	Scheduled maintenance on tower control panel	Rowley performing maintenance on control panel at water tower - power outage due to hydro one cutting power to perform work at tower	Colin MacDonald
August 17 2022	Several alarms triggered	Due to power outage - power returned WTP functioning as per normal	Colin MacDonald
Sept 3 2022	Low chlorine	Low chlorine due to damaged injection quill - backflushed tower until residual returned and replaced damaged quill. WTP as normal	Colin MacDonald
sept 8 2022	Low chlorine	Backflushed tower several times as noted in log book - discovered hypo tank compromised - began running chlorine directly via del can	Colin MacDonald
Sept 10 2022	Low chlorine	Backflushed tower several times as noted in log book - discovered hypo tank compromised - began running chlorine directly via del can	Colin MacDonald
Sept 14 2022	high chlorine	Actuated valve MV100 did not auto cycle, backflushed tower until residual returned to normal parameters. Verified residual in field.	Brett Pollard/ Colin MacDonald
October 21 2022	Well 2 Fault	Cleared fault via VFD control panel	Colin MacDonald
Nov 15 2022	Several alarms triggered	Alarms triggered due to scheduled maintenance on backup generator - reset alarms WPT running as per normal	Brett Pollard
Dec 23 2022	Well 2 Flow sensor alarm	Power outage due to damaged transformer. Temporary heat provided by Rowley electric, transformer ordered. Well 2 set to manual standby until power restored and new transformer installed	Colin MacDonald
Dec 23-25 2022	Power outage	Township wide power outage due to storm - WTP running on emergency generator, remote monitoring SCADA and field insepction of generator to ensure fuel levels during prolonged power	Brett Pollard/ Colin MacDonald
Dec 25 2022	Well 1A fault	Cleared fault via VFD control panel	Brett Pollard/ Colin MacDonald
Dec 30 2022	Low chlorine	Erroneus error on SCADA system - field inspection and residual collected - WTP running as per normal	Colin MacDonald



APPENDIX H

SAI Global Audit Report

Audit Report

Systems Audit for

Aquatech Canadian Water Services Inc.

1726006-01

Audited Address: 4750, Henri-Julien ave.,, Montreal, Québec, CAN,
H2T2C8

Start Date: Feb 03, 2022 End Date: Feb 03, 2022

Type of audit -
System (Stage 1)

Issue Date: 2021-01-16
Revision Level: 00 and assorted

BACKGROUND INFORMATION

SAI Global conducted an audit of Aquatech Canadian Water Services Inc. beginning on Feb 03, 2022 and ending on Feb 03, 2022 to DRINKING WATER QUALITY MANAGEMENT STANDARD VERSION 2 - 2017.

The purpose of this audit report is to summarise the degree of compliance with relevant criteria, as defined on the cover page of this report, based on the evidence obtained during the audit of your organization. This audit report considers your organization's policies, objectives, and continual improvement processes. Comments may include how suitable the objectives selected by your organization appear to be in regard to maintaining customer satisfaction levels and providing other benefits with respect to policy and other external and internal needs. We may also comment regarding the measurable progress you have made in reaching these targets for improvement.

SAI Global audits are carried out within the requirements of SAI Global procedures that also reflect the requirements and guidance provided in the international standards relating to audit practice such as ISO/IEC 17021-1, ISO 19011 and other normative criteria. SAI Global Auditors are assigned to audits according to industry, standard or technical competencies appropriate to the organization being audited. Details of such experience and competency are maintained in our records.

In addition to the information contained in this audit report, SAI Global maintains files for each client. These files contain details of organization size and personnel as well as evidence collected during preliminary and subsequent audit activities (Documentation Review and Scope) relevant to the application for initial and continuing certification of your organization.

Please take care to advise us of any change that may affect the application/certification or may assist us to keep your contact information up to date, as required by SAI Global Terms and Conditions.

This report has been prepared by SAI Global Limited (SAI Global) in respect of a client's application for assessment by SAI Global. The purpose of the report is to comment upon evidence of the Client's compliance with the standards or other criteria specified. The content of this report applies only to matters, which were evident to SAI Global at the time of the audit, based on sampling of evidence provided and within the audit scope. SAI Global does not warrant or otherwise comment upon the suitability of the contents of the report or the certificate for any particular purpose or use. SAI Global accepts no liability whatsoever for consequences to, or actions taken by, third parties as a result of or in reliance upon information contained in this report or certificate.

Please note that this report is subject to independent review and approval. Should changes to the outcomes of this report be necessary as a result of the review, a revised report will be issued and will supersede this report.

Standard:	DRINKING WATER QUALITY MANAGEMENT STANDARD VERSION 2 - 2017
Scope of Certification:	Drinking Water Treatment and Distribution
Drinking Water System Owner:	The Township of Cramahe
Operating Authority:	Aquatech Canadian Water Services
Owner:	The Township of Cramahe
Population Services:	2000
Activities:	Treatment, Distribution
Drinking Water Systems	Colborne Water and distribution system

Total audit duration:	Person(s): 1	Day(s): 0.50
Audit Team Member(s):	Team Leader	Tim Moher

Other Participants: Not applicable.

Audit Report

Definitions and action required with respect to audit findings

Major Non-conformance:

Based on objective evidence, the absence of, or a significant failure to implement and/or maintain conformance to requirements of the applicable standard. Such issues may raise significant doubt as to the capability of the management system to achieve its intended outputs (i.e. the absence of or failure to implement a complete Management System clause of the standard); or

A situation which would on the basis of available objective evidence, raise significant doubt as to the capability of the Management System to achieve the stated policy and objectives of the customer.

NOTE: The "applicable Standard" is the Standard which SAI Global are issuing certification against, and may be a Product Standard, a management system Standard, a food safety Standard or another set of documented criteria.

Action required: This category of findings requires SAI Global to issue a formal NCR; to receive and approve client's proposed correction and corrective action plans; and formally verify the effective implementation of planned activities. Correction and corrective action plan should be submitted to SAI Global prior to commencement of follow-up activities as required. Follow-up action by SAI Global must 'close out' the NCR or reduce it to a lesser category **within 90 days for initial certification and within 60 days for surveillance or re-certification audits, from the last day of the audit.**

If significant risk issues (e.g. safety, environmental, food safety, product legality/quality, etc.) are detected during an audit these shall be reported immediately to the Client and more immediate or instant correction shall be requested. If this is not agreed and cannot be resolved to the satisfaction of SAI Global, immediate suspension shall be recommended.

In the case of initial certification, failure to close out NCR within the time limits means that the Certification Audit may be repeated.

If significant risk issues (e.g. safety, environmental, food safety, product legality/quality, etc.) are detected during an audit these shall be reported immediately to the Client and more immediate or instant correction shall be requested. If this is not agreed and cannot be resolved to the satisfaction of SAI Global, immediate suspension shall be recommended.

In the case of an already certified client, failure to close out NCR within the time limits means that suspension proceedings may be instituted by SAI Global.

Follow-up activities incur additional charges.

Minor Non-conformance:

Represents either a management system weakness or minor issue that could lead to a major nonconformance if not addressed. Each minor NC should be considered for potential improvement and to further investigate any system weaknesses for possible inclusion in the corrective action program

Action required: This category of findings requires SAI Global to issue a formal NCR; to receive and approve client's proposed correction and corrective action plans; and formally verify the effective implementation of planned activities at the next scheduled audit.

Opportunity for Improvement:

A documented statement, which may identify areas for improvement however shall not make specific recommendation(s).

Action required: Client may develop and implement solutions in order to add value to operations and management systems. SAI Global is not required to follow-up on this category of audit finding.

Audit Type and Purpose

Systems Audit:

A desktop audit of the operational plans for the subject system to assess whether the documented QMS meets the PLAN requirements of the DWQMS V2.

On-site Verification Audit:

An onsite audit to assess whether a QMS has been implemented for the subject system that meets the “DO” requirements of the DWQMS V2.

Surveillance Audit:

A systems desktop audit in accordance with the systems audit procedure as it applies to Full Scope accreditation. The audit also included consideration of the results of the most recent audit undertaken in accordance with this Accreditation Protocol and any of the following that have occurred subsequent to that audit including but limited to;

- (a) the results of any audits undertaken in accordance with element 19 of the DWQMS V2;
- (b) historical responses taken to address corrective action requests made by an Accreditation Body;
- (c) the results of any management reviews undertaken in accordance with element 20 of the DWQMS V2; and,
- (d) any changes to the documentation and implementation of the QMS.

Audit Objectives

The objective of the audit was to determine whether the drinking water Quality Management System (QMS) of the subject system conforms to the requirements of the Ontario Ministry of the Environment & Climate Change (MOECC) Drinking Water Quality Management Standard (DWQMS V2).

The audit was also intended to gather the information necessary for SAI Global to assess whether accreditation can continue or be offered or to the operating authority.

Audit Scope

The facilities and processes associated with the operating authority's QMS were objectively evaluated to obtain audit evidence and to determine a) whether the quality management activities and related results conform with DWQMS V2 requirements, and b) if they have been effectively implemented and/or maintained.

Audit Criteria:

- The Drinking Water Quality Management Standard Version 2
- Current QMS manuals, procedures and records implemented by the Operating Authority
- SAI Global Accreditation Program Handbook

Confidentiality and Documentation Requirements

The SAI Global stores their records and reports to ensure their preservation and confidentiality. Unless required by law, the SAI Global will not disclose audit records to a third party without prior written consent of the applicant. The only exception will be that the SAI Global will provide audit and corrective action reports to the Ontario Ministry of the Environment. For more information, please refer to the SAI Global Accreditation Program Handbook.

As part of the SAI Global Terms, it is necessary for you to notify SAI Global of any changes to your Quality Management System that you believe are significant enough to risk non-conformity with DWQMS V2: For more information, please refer to the SAI Global Accreditation Program Handbook.

Review of any changes

Changes to the Operating Authority since last audit include: Not applicable.

EXECUTIVE OVERVIEW

The objective of this System audit (Stage 1) was to review the management system and processes, confirm the scope for certification, and determine the organization's preparedness for the onsite verification audit (Stage 2). In addition, it allowed for the review of the adequacy of the SAI Global audit program and resources for the audit including confirming and preparing the draft audit plan.

The results of this System (Stage 1) audit indicate that the organization is now ready for an onsite accreditation (Stage 2) audit.

Recommendation

Based on the results of this audit it has been determined that the management system is effectively implemented and maintained and meets the requirements of the standard relative to the scope of certification identified in this report; therefore, a recommendation for (continued) certification will be submitted to SAI Global review team.

Opportunities for Improvement:

The following opportunities for improvement have been identified.

- Element 8: *OFI#1: The procedures lack detail concerning possible outcomes of hazards, likelihood, consequences, risk value. Can be discussed on-site.*
- Element 14: *OFI#2: The review should be every Calendar Year and not annual as per the Drinking Water Standard.*
- Element #15: *OFI#3: There is no clear mention of a long range forecast done every Calendar year as per the Drinking Water Standard.*

It is suggested that the opportunities for improvement be considered by management to further enhance the Operating Authority's Quality Management System and performance.

Management System Documentation

The management systems operational plan(s) was reviewed and found to be in conformance with the requirements of the standard.

Management Review

Records of the most recent management review meetings were verified and found to meet the requirements of the standard. All inputs were reflected in the records and appear suitably managed as reflected by resulting actions and decisions.

Internal Audits

Internal audits are being conducted at planned intervals to ensure conformance to planned arrangements, the requirements of the standard and the established management system.

Corrective, Preventive Action & Continual Improvement Processes

The Operating Authority is implementing an effective process for the continual improvement of the management system through the use of the quality policy, quality objectives, audit results, data analysis, the appropriate management of corrective and preventive actions and management review.

Summary of Findings

1. Quality Management System	Conforms
2. Quality Management System Policy	Conforms
3. Commitment and Endorsement	Conforms
4. Quality Management System Representative	Conforms
5. Document and Records Control	Conforms
6. Drinking-Water System	Conforms
7. Risk Assessment	Conforms
8. Risk Assessment Outcomes	OFI#1
9. Organizational Structure, Roles, Responsibilities and Authorities	Conforms
10. Competencies	Conforms
11. Personnel Coverage	Conforms
12. Communications	Conforms
13. Essential Supplies and Services	Conforms
14. Review and Provision of Infrastructure	OFI#2
15. Infrastructure Maintenance, Rehabilitation & Renewal	OFI#3
16. Sampling, Testing and Monitoring	Conforms
17. Measurement & Recording Equipment Calibration and Maintenance	Conforms
18. Emergency Management	Conforms
19. Internal Audits	Conforms
20. Management Review	Conforms
21. Continual Improvement	Conforms
Major NCR #	Major non-conformity. The auditor has determined one of the following: (a) a required element of the DWQMS has not been incorporated into a QMS; (b) a systemic problem with a QMS is evidenced by two or more minor non-conformities; or (c) a minor non-conformity identified with a corrective action request has not been remedied.
Minor NCR #	Minor non-conformity. In the opinion of the auditor, part of a required element of the DWQMS has not been incorporated satisfactorily into a QMS.
OFI	Opportunity for improvement. Conforms to requirement, but there is an opportunity for improvement.
Conforms	Conforms to requirement.
NANC	Not applicable/Not Covered during this audit.
****	Additional comment added by auditor in the body of the report.

PART D. Audit Observations, Findings and Comments

DWQMS Reference:	1 Quality Management System
Client Reference:	Element 1, Rev 00
Details: Conforms.	

DWQMS Reference:	2 Quality Management System Policy
Client Reference:	Element 2, Rev 01
Details: Conforms. <i>Signed off by CAO Treasurer on July 8, 2021 and Operations Manager on June 25, 2021.</i>	

DWQMS Reference:	3 Commitment and Endorsement
Client Reference:	Element 3, Rev 00
Details: Conforms. <i>Signed off by CAO Treasurer on July 8, 2021, and Operations Manager on June 16, 2021.</i>	

DWQMS Reference:	4 Quality Management System Representative
Client Reference:	Element 4, Rev 00
Details: Conforms. <i>The Project Manager of the Operating Authority (ACWS) has been designated as the QMS representative. In his absence, the Project Manager has delegated the ACWS Assistant Manager to be the alternate.</i>	

DWQMS Reference:	5 Document and Record Control
Client Reference:	Element 5, Rev 01
Details: Conforms.	

DWQMS Reference:	6 Drinking Water System
Client Reference:	Element 6, Rev 01
Details: Conforms. <i>There is a description including a schematic diagram. The disruption map including hydrants and valves will be verified on site.</i>	

DWQMS Reference:	7 Risk Assessment
Client Reference:	Element 7, Rev 01, Table Risk Assessment Table (03-03-2022)
Details: Conforms.	

DWQMS Reference:	8 Risk Assessment Outcomes
Client Reference:	Element 8, Rev 00
Details: Conforms for now. <i>OFI#1: The procedures lack detail concerning possible outcomes of hazards, likelihood, consequences, risk value. Can be discussed on-site.</i>	

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DWQMS Reference:	9 Organizational Structure, Roles, Responsibility and Authorities
Client Reference:	Element 9, Rev 00
Details: Conforms.	

DWQMS Reference:	10 Competencies
Client Reference:	Element 10, Rev 00
Details: Conforms.	

DWQMS Reference:	11 Personnel Coverage
Client Reference:	Element 11, Rev 01
Details: Conforms.	

DWQMS Reference:	12 Communications
Client Reference:	Element 12, Rev 00
Details: Conforms.	

DWQMS Reference:	13 Essential Supplies and Services
Client Reference:	Element 13, Rev 00
Details: Conforms.	

DWQMS Reference:	14 Review and Provision of Infrastructure
Client Reference:	Element 14, Rev 00
Details: Conforms. <i>OFI#2: The review should be every Calendar Year and not annual as per the Drinking Water Standard.</i>	

DWQMS Reference:	15 Infrastructure Maintenance, Rehabilitation and Renewal
Client Reference:	Element 15, Rev 00
Details: Conforms. <i>OFI#3: There is no clear mention of a long range forecast done every Calendar year as per the Drinking Water Standard.</i>	

DWQMS Reference:	16 Sampling, Testing and Monitoring
Client Reference:	Element 16, Rev 01
Details: Conforms.	

DWQMS Reference:	17 Measurement and Recording Equipment Calibration and Maintenance
Client Reference:	Element 17, Rev 00
Details: Conforms.	

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DWQMS Reference:	18 Emergency Management
Client Reference:	Element 18, Rev 00
Details: Conforms. <i>To be done on March 10, 2022. This will be verified on-site.</i>	

DWQMS Reference:	19 Internal Audits
Client Reference:	Element 19, Rev 00
Details: Conforms. <i>Performed on February 18, 2022. There were 4 Non-conformances and 5 OFI's.</i>	

DWQMS Reference:	20 Management Review
Client Reference:	Element 20, Rev 04
Details: Conforms. <i>The last management review was on February 24, 2022.</i>	

DWQMS Reference:	21 Continual Improvement
Client Reference:	Element 21, Rev 00
Details: <i>(personnel interviewed, procedures, activities and records observed)</i>	

Details regarding the personnel interviewed and objective evidence reviewed are maintained on file at SAI Global.

This report was prepared by:

Tim Moher
SAI Global Management Systems Auditor

The audit report is distributed as follows:

- SAI Global
- Operating Authority
- Owner
- MOECC

Notes

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