



Regular Council Meeting

To:	Mayor and Council
Date:	February 18, 2025
From:	Jessica Fradley, Water Wastewater Technician Wayne Hancock, Director of Public Works
Report Number:	Public Works 2025-01
Subject:	Drinking Water Quality Management System (DWQMS) - Millbrook Water System

Recommendations:

1. That Council endorse the contents of the Limited Scope DWQMS Operational Plan for the Millbrook Water System as step one of the Accreditation process; and
2. That Top Management, as defined in the Operational Plan, be delegated authority to endorse changes to the Operational Plan of minor or administrative nature.

Overview:

The Ontario Safe Drinking Water Act, 2002 mandates that an Accredited Operating authority oversee all municipal residential drinking water systems. To become an Operating Authority the municipality must implement an Operational Plan that follows the Ministry of Environment’s Ontario Drinking Water Quality Management Standards (DWQMS).

The Accreditation process consists of two (2) steps. Step one is to obtain Limited Scope Accreditation, which involves creating and reviewing an initial limited version of the Operational Plan. This enables authorities to begin operating while the Full Scope Operational Plan is being developed. Step two is to complete the Full Scope Operational Plan within six (6) months of obtaining Limited Scope Accreditation. The following chart outlines the requirements between Limited Scope Accreditation, and Full Scope. The elements in bold are the nine (9) required for Limited Scope Accreditation:

DWQMS elements	Operational plans contents: limited scope—transitional	Operational plans contents: full scope—entire DWQMS
1. Quality Management System	N/A	Yes
2. Quality Management System Policy	N/A	Yes
3. Commitment and Endorsement	Yes	Yes

4. Quality Management System Representative	Yes	Yes
5. Document and Records Control	N/A	Yes
6. Drinking Water System	Yes	Yes
7. Risk Assessment	N/A	Yes
8. Risk Assessment Outcomes	N/A	Yes
9. Organizational Structure, Roles, Responsibilities and Authorities	Yes	Yes
10. Competencies	N/A	Yes
11. Personnel Coverage	Yes	Yes
12. Communications	N/A	Yes
13. Essential Supplies and Services	Yes	Yes
14. Review and Provision of Infrastructure	N/A	Yes
15. Infrastructure Maintenance, Rehabilitation and Renewal	N/A	Yes
16. Sampling, Testing and Monitoring	Yes	Yes
17. Measurement and Recording Equipment Calibration and Maintenance	Yes	Yes
18. Emergency Management	Yes	Yes
19. Internal Audits	N/A	Yes
20. Management Review	N/A	Yes
21. Continual Improvement	N/A	Yes

As water and wastewater services transition from The City of Peterborough to the Township on April 1, 2025, the Township will assume the role of the Operating Authority. Accreditation is granted following an audit of the DWQMS Operational Plan by an approved third-party Accreditation Body. The Township has enlisted NSF International Strategic Registrations (NSF-ISR) for this audit process. NSF-ISR has previously audited the City of Peterborough and is already familiar with the Township's systems and current Operational Plan. The Township's new Operational Plan closely mirrors the existing one for the system in place.

The auditor will evaluate nine (9) of the twenty-one (21) elements in the Operational Plan for compliance with DWQMS requirements, issuing a Certificate of Accreditation (Limited Scope Transitional). Within six (6) months of receiving this certificate, the Township will apply for full-scope accreditation, which will involve a systems audit and on-site verification of all 21 DWQMS elements.

NSF-ISR is scheduled to conduct the limited scope audit of the Township's Operational Plan on February 24, 2025. Element three (3) of the Ontario DWQMS, titled "Commitment and Endorsement," requires confirmation, through a Council resolution. Additionally, this Commitment and Endorsement must be signed by the Top Management of the Operating Authority, which includes the Chief Administrative Officer, Director of Finance/Treasurer and the Director of Public Works. It is recommended that the authority approve minor and administrative changes to the Operational Plan be delegated to Top Management, allowing for prompt updates when necessary.

A subsequent report will be presented to Council in the coming months to seek endorsement of the remaining DWQMS elements in preparation for the Full Scope Accreditation audit.

Financial Impact:

Costs associated with the Accreditation audits are accounted for within the 2025 Water and Wastewater Operational Budget.

Attachment:

1. DWQMS Limited Scope Operational Plan – Millbrook Drinking Water System

Respectfully Submitted by,

Jessica Fradley,
Water Wastewater Technician

Wayne Hancock
Director of Public Works

Reviewed by,

Yvette Hurley
Chief Administrative Officer



Drinking Water Quality Management System

Operational Plan

Limited Scope

Millbrook Drinking Water System

DWQMS Operational Plan



Table of Revisions

Revisions #	Date	Section	Change	Approved By
0	February 2025	3,4,6,7,11,13, 16,17,18	Developed Operational Plan for Limited Scope Transitional (LST) Audit	W. Hancock

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3. Commitment and Endorsement

1. Purpose

To communicate the Owner and Top Management’s commitment to and enforcement of the Quality Management System described in this operational plan.

2. Commitment and Endorsement

In accordance with Element 3 of the Drinking Water Quality Management Standard, the Township of Cavan Monaghan, as the Owner and Top Management, supports the implementation and maintenance of the Drinking Water Quality Management System (DWQMS), as documented in this Operational Plan. This Commitment by Top Management extends beyond agreement in principle to active participation in the development and/or review of policies that promote continual improvement. Endorsement by the Owner and Top Management acknowledged the need for and supports the provision of sufficient resources to maintain the DWQMS.

Top Management

Date

Chief Administrative Officer
Yvette Hurley

Date

Director of Public Works
Wayne Hancock

Date

Director of Finance/Treasurer
Kimberley Pope

4. Quality Management System Representative

1. Purpose

To identify the role of the Quality Management System (QMS) Representative for the Township of Cavan Monaghan and describe the specific responsibilities and authorities placed upon the Representative.

2. Quality Management System Representative

The Water Wastewater Technician, Township of Cavan Monaghan, was appointed by Top Management to the role of QMS Representative for the Millbrook Municipal Water System.

The QMS Representative holds the following responsibilities and authorities (irrespective of other responsibilities):

- Administers the QMS by ensuring that processes and procedures needed for the QMS are established and maintained.
- Report to Top Management on the performance of the QMS and any need for improvement.
- Ensure that the current version of documents required by the QMS are being used at all times.
- Ensure that personnel are aware of all applicable legislative and regulatory requirements that pertain to their duties for the operation of the drinking water system.
- Promote awareness of the QMS throughout the operating authority.
- The Director of Public Works, Township of Cavan Monaghan shall be designated as the alternate QMS Representative.

3. Related Documents

Drinking Water Quality Management Standard – Element 4

6. Drinking Water System

1. Purpose

To describe the Millbrook drinking water system owned and operated by the Township of Cavan Monaghan. It is the responsibility of the Quality Management System (QMS) Representative to ensure that this procedure is kept current.

2. Name of Owner and Operating Authority

The Corporation of the Township of Cavan Monaghan owns and operates the Millbrook Drinking Water System. Mayor and Members of Council are the Owners of the Drinking Water System (DWS) and the Public Works Department is the Operating Authority.

3. Description of Drinking Water System

The Millbrook municipal water system obtains its water from three (3) drilled municipal wells; Well No. 1, Well No. 2 and Well No. 3. The 3 wells are not under the direct influence of surface water.

Well No. 1

A 250 mm Diameter 30 m deep ground water production well, located approximately 40m north of King Street at a point approximately 33 meters west of George Street intersection (NAD 17:UTM Zone 17:0703038.00E, 4891261.00 N). Equipped with a submersible vertical turbine well pump capable of delivering 1500L/min at a Total Dynamic Head (TDH) of 64m, driven by a 30HP electric motor, discharging to a well pump house. Well No. 1 is equipped with a magnetic flow meter, a flow control valve and a 150mm diameter gated/valved overflow line installed in the existing pumphouse.

Well No. 2

A 250 mm Diameter 30 m deep ground water production well, located in a 1.75 m by 2.06 m pump chamber (NAD 17:UTM Zone 17:070344.00 E, 4891258.00 N) equipped with a submersible vertical turbine well pump capable of delivering 1500 L/min at a THD of 64 m, driven by a 30 HP electric motor, discharging header complete with a magnetic flow meter, a flow control valve and a 150 mm diameter gated/valved overflow line installed in the existing pumphouse.

Well No. 3

A 254 mm Diameter 31 m deep ground water production well, located outside the main pumping station (NAD 17:UTM Zone 17:4891250.00 E, 703060.00 N) housed in a 1.75 m by 2.06 m concrete chamber. Equipped with a submersible vertical turbine well pump capable of delivering 1500L/min at a TDH of 64 m, driven by a 22.5 kW electric motor. There is a 150 mm diameter discharge header provided from Well No. 3 pump chamber to the existing 150 mm common discharge header in the existing Well No. 1 pumping station, complete with a flow control valve, magnetic flow meter and a 150 mm diameter gated/valved overflow line installed in the existing pumphouse.

In 2023, Well No. 3 was re-lined due to a faulty casing found during routine cleaning and inspection. The liner is a 200mm, 304 stainless steel liner lowered to a depth of 25.2m and grouted in place.

Pumphouse

A 5.5 m by 5.5 m well pumphouse is located over Well No. 1 (NAD 17:UTM Zone 17:0703038.00 E, 4891261.00 N) housing a submersible vertical turbine well pump, a 150 mm discharge header, treatment and control facilities include.

Disinfection

The chlorination system uses sodium hypochlorite solution and consists of one 400 L chemical solution tank. The chemical feed system includes 2 paced-to-flow chemical metering pumps (1 duty, 1 standby) each rated at 291 L/day, complete with related instrumentation, piping, valves, mechanical and electrical equipment, and appurtenances, auto switch-over capability, 4- 20 mA signal flow meter on common treated water discharge line, a turbidity analyzer, and a chlorine residual analyzer, complete with related sampling lines connecting from the 250 mm diameter common discharge header. The system is equipped with a low chlorine residual alarm and pump shut off mechanism to prevent low chlorine or unchlorinated water to be distributed to consumers.

The chlorine contact serpentine includes 71 m of 900 mm diameter watermain at the pumphouse site, complete with a 25 mm diameter air release line to the air release valve within the pumphouse, all associated appurtenances and sample lines to the chlorine residual analyzer.

Water Distribution

The water distribution system is comprised of the watermains having diameters of 150 mm, 200 mm, and 250 mm. There is a 2600 m³ capacity standpipe beside the Booster Pumping Station located behind the Township office on County Road 10 that provides fire water storage and maintains pressure in the distribution system. The Booster pumping station office provides operational and emergency water pressure to the North portion of Millbrook. Fire hydrants and isolating valves are located throughout the distribution network. The distribution system consists of looped water mains as well as branched connections with several dead ends. Water mains are flushed once annually.

Operational Challenges and Threats

Use of distribution system for firefighting may result in increased flows. Contact times may be reduced if flows exceed Contact Time (CT) calculation parameters.

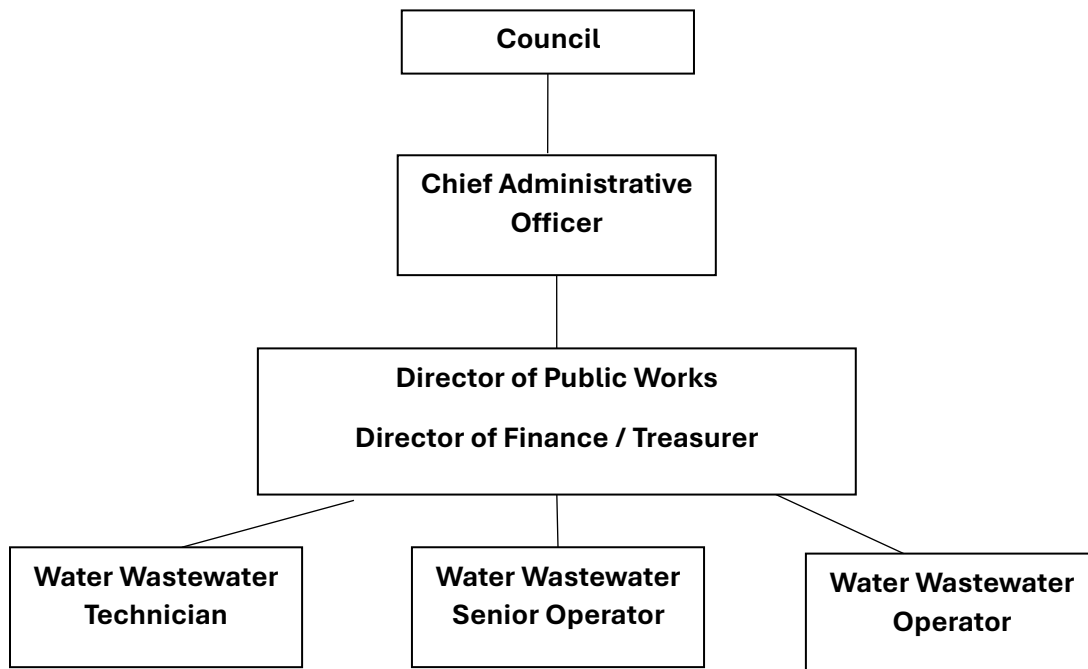
9. Organizational Structure, Role, Responsibilities and Authorities

1. Purpose

To document a procedure ensuring that the Owner, Operating Authority and Top Management are defined. The organizational structure of the Operating Authority is described as well as the roles, responsibilities and authorities of Top Management and key Positions within the Operating Authority.

2. Organizational Structure, Roles, Responsibilities and Authorities

Owner	Mayor and Members of the Township of Cavan Monaghan Council
Operating Authority	Public Works Department
Top Management	Chief Administrative Officer, Director of Public Works, Director of Finance/ Treasurer
QMS Representative	Water Wastewater Technician



DWQMS Operational Plan



Title	Responsibility	Authority
Mayor and Members of Council (Owner)	<ul style="list-style-type: none"> • Endorse and support the DWQMS Operational Plan and related documentation. • Provide resources and system infrastructure, as necessary, to provide safe drinking water in compliance with all applicable legislation. • Represent the drinking water system to the end users. • Prescribe requirements and monitor operations of the drinking water system to ensure safe clean drinking water is provided to all consumers. 	<ul style="list-style-type: none"> • Provide and maintain financial integrity, accountability and transparency. • Ensure competent personnel manage the drinking water system.
Chief Administrative Officer (Top Management)	<ul style="list-style-type: none"> • Endorse and support the DWQMS Operational Plan and related documentation. • Ensuring the QMS is implemented and maintained, and the Operating Authority is accredited. • Leadership and general management of the Township, acting as key advisor and liaison to Council. • Ensure competent Management is in place to run and oversee the system. • Obtaining resources or infrastructure as necessary from the Owner. • Owner representative during emergency situations. • Lead for providing information to the public and media, if required, during emergency situation. • Required to attend Management Review meetings. 	<ul style="list-style-type: none"> • Recommend and/or implement improvements/changes to the drinking water system. • Designate responsibilities as appropriate.
Director of Public Works (Top Management)	<ul style="list-style-type: none"> • Endorse and support the DWQMS Operational Plan and related documentation. • Overall responsibility for the Public Works Department. • Reporting the DWS performance and operations status to the Owner. • Obtain resources or infrastructure as necessary. 	<ul style="list-style-type: none"> • Designate responsibilities as appropriate. • Allocation of resources provided • Approval of hiring all personnel staff for the Public Works Department. • Approve and implement standard operating procedures, policies and

DWQMS Operational Plan



	<ul style="list-style-type: none"> • Leads general and financial management of the Public Works Department. • Assess road, water, wastewater, environmental, and transportation infrastructure needs. • Oversees preparation of and recommends annual operating and capital budgets. • Communicate emergencies to CAO as required. • Overall responsibility for staff safety. • Lead for managing emergencies. • Required to attend Management Review meetings. • Alternate QMS Representative. 	<p>related documentation within the department.</p>
<p style="text-align: center;">Water Wastewater Technician (QMS Representative)</p>	<ul style="list-style-type: none"> • Development of drinking water operational plans and procedures. • Update and maintain Operational Plan. • Maintain regulatory compliance within the Public Works Department. • Budget development for the DWS. • Training and development of staff. • Complete Internal Audit process. • Annual Risk Assessment procedure review • Appointed QMS Representative by Top Management through job description. • Develop, implement, and maintain the QMS in accordance with the DWQMS. • Report on the effectiveness of the QMS to Top Management. • Promote the QMS throughout the DWS. • Chair the Management Review meetings. • Maintaining compliance in the DWS. • Complete regulatory reporting under the SDWA and all other applicable legislation/ regulations. 	<ul style="list-style-type: none"> • Reporting any adverse water quality incidents to regulatory agencies, and Top Management. • Development and implement policies and procedures. • To perform all defined responsibilities in the QMS. • Chair the Management Review meetings.
<p style="text-align: center;">Water Wastewater Senior Operator</p>	<ul style="list-style-type: none"> • Designated Overall Responsible Operator (ORO) for the Township's DWS. • Schedule work assignments. 	<ul style="list-style-type: none"> • Designate responsibilities as required.

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	<ul style="list-style-type: none"> • Ensure water quality and quantity to consumers. • Monitor water quality and demand. • Supervision of operations and maintenance staff. • Coordinates and directs the day-to-day operations and maintenance of the drinking water system. • Maintain operational parameters of the DWS. 	
<p>Water Wastewater Operator</p>	<ul style="list-style-type: none"> • Perform specified duties as directed as per training and/or directed by superiors. • Maintain operational parameters of the DWS. • Maintain or repair machinery and equipment where qualified. • Designated operator in charge (OIC) where appropriate. • Follows duties as assigned in the QMS. • Maintain operator's license and training as per MECP requirements. • Report and act upon nonconformance's and corrective actions. • To perform response and recovery activities as directed. • Alternate ORO as assigned by the Foreman. 	<ul style="list-style-type: none"> • Operate and maintain the DWS under direction of the Director of Public Works and Senior Operator. • Identify problems within the DWS. • To perform all defined responsibilities in the QMS.

11. Personnel Coverage

1. Purpose

To ensure the continuous coverage and availability of personnel for the Millbrook Water System to address all issues that directly affect drinking water quality.

2. Personnel Coverage During Normal Working Hours

Staff coverage is aligned with the requirements of the Safe Drinking Water Act, 2002, O. Reg 128/04 Certification of Drinking Water System Operators and Water Quality Analysts and O Reg. 170/03 Drinking Water Systems.

The Millbrook Drinking Water System is a Class II Water Distribution and Supply system, and therefore the overall responsible operator (ORO) must also hold a minimum Class II Certificate or higher. An operator with a certificate one class lower than the class of the system may assume the ORO responsibility for up to 150 days a year as a back-up when the ORO with the required qualifications is absent or unable to act. If required, a third-party ORO may be contracted.

The ORO must always be available by phone.

Regular hours are 7:00am-5:00pm Monday - Friday. There is a minimum of one operator designated to the water system at any given time.

3. Afterhours, Weekends and Holidays

Operators with Operator-in-Training (OIT) Water Distribution and Supply licenses are on a rotating on-call schedule to cover after hours, weekends and holidays. All on-call operators will carry a Township provided cell phone. The schedule will be determined by the Director of Public Works. If the on-call operator requires regulatory or technical support they are to call the ORO.

4. Callout Sequence and Back-up Plan

After-hours calls are fielded by an answering service and sent to the appropriate on-call operator. If the on-call operator cannot be reached, a call will be made to staff in the following order:

- a. ORO, if not the operator on call
- b. DWQMS Representative
- c. Director of Public Works

5. Staff Shortages

In the event of a staff shortage due to unforeseen circumstances, other staff with the proper level of certification may operate the water system. In certain Emergency Situations, certain people not holding an applicable operators certificate may be able to temporarily operate the system as outlines in O.Reg 128/04 Section 13.

13. Essential Supplies and Services

1. Purpose

To ensure that all suppliers and service providers used by the Township of Cavan Monaghan for the Millbrook Water System meet all quality and regulatory requirements to provide safe and reliable drinking water to all customers.

2. Essential Supplies and Services

The information related to the essential suppliers and service providers is reviewed annually as part of the Operational Plan review. This ensures that information is current and that any updates to the essential supplies and services plan are communicated to appropriate personnel.

All process chemicals must meet applicable National Sanitation Foundation (NSF), American Water Work Association (AWWA) and American National Institute (ANSI) standards. Proof of chemical products must be provided to the operator upon delivery.

All testing conducted at laboratories must be done at laboratories that are accredited to ISO17025 standards.

Staff verify on an on-going basis, that product shipments meet the quality requirements. When deliveries from suppliers are non-conforming, they are not accepted and returned to the supplier.

The following table lists some of the essential supplies and service providers along with quality requirements:

Essential Supply or Service	Method for Procurement	Quality Requirements
Laboratory Services	<ul style="list-style-type: none"> • Sample containers and chain of custody (C of C) provided by the lab • Water samples taken by operator with completed C of C • Results provided to Township 	<ul style="list-style-type: none"> • Lab accredited to ISO 17025 and licenses by MECP
Parts and Equipment	<ul style="list-style-type: none"> • Rental, back-up and replacement equipment and parts 	<ul style="list-style-type: none"> • Township staff confirms quality prior to receiving delivery • NSF 61 Certification • Packing slips confirming products delivered meet requirements

DWQMS Operational Plan



Treatment Chemicals	<ul style="list-style-type: none">• Minimum quantity of chemicals at all times• Delivery schedule set and agreed to by supplier and Township• Proper delivery and transport following all health and safety protocols Certificate of Analysis (c of A)	<ul style="list-style-type: none">• C of A confirming chemical composition and concentration• NSF 60 certification• Operator verifies conformity prior to receiving chemicals
Calibration Services	<ul style="list-style-type: none">• Scheduled annually	<ul style="list-style-type: none">• Authorized to service manufacturer's equipment• Certificate of calibration/service provided

3. Related documents

Drinking Water Management Standard – Element 13

16. Sampling, Testing and Monitoring

1. Purpose

The purpose of this procedure is to ensure that sampling, testing, and monitoring conducted for the Millbrook Drinking Water System (DWS) is performed in a manner that meets and/or exceeds regulatory requirements.

2. Sampling, Testing and Monitoring

Sampling and analysis of the drinking water falls under two categories:

- a. Regulatory Sampling
- b. Operational or process monitoring and control

All sampling programs, including frequency, sampling, testing, and monitoring meet the requirements of the Safe Drinking Water Act (SDWA). All samples collected under O.Reg 170/03 shall only be analyzed by an accredited laboratory. Approved laboratories are found in the list of Essential Suppliers and Services found within the Emergency and Contingency List. regulatory drinking water testing must be performed by a laboratory that is licensed by the Ministry of Environment Conservation, and Parks (MECP). The water quality sampling program is to be reviewed on an annual basis to ensure the legally required number of samples are being taken based on population.

3. Sampling Protocol

- a. All samples collected within the DWS are to be collected by a Township operator or a Township approved qualified professional.
- b. Samples for Treated Water are to be taken from the point at which water enters the drinking water system's distribution system following full treatment.
- c. Samples for Raw Water are to be taken from a point prior to the addition of chlorine.
- d. Bacteriological sampling, including chlorine residuals, are completed weekly throughout the distribution system by the Township's operators. Locations are outlined in the table below.
- e. All samples taken for laboratory analysis are grab samples.
- f. Each sample taken for microbiological analysis, another sample must be taken at the same time and location immediately and tested for free residual chlorine.
- g. When samples are taken, the following information must be recorded on the Chain of Custody form: date, time, location, name of sampler.
- h. If an on-site operational check is performed, this result is also to be recorded on the form.
- i. All instructions provided by the laboratory must be followed for sampling, storage, preservation, and transportation. These instructions follow the MECP

DWQMS Operational Plan

protocol titled "Practices for the Collection and Handling of Drinking Water Samples".

- j. All tests that are recorded by continuous monitoring equipment must be examined by a certified operator within 72 hours after the tests are conducted.

Sampling Schedule

Location	Regulatory Testing	Operational Testing
Raw Well <ul style="list-style-type: none"> • Well 1 • Well 2 • Well 3 	Weekly <ul style="list-style-type: none"> • Total Coliforms • E. coli • Heterotrophic Plate Count 	Weekly <ul style="list-style-type: none"> • Turbidity
Treated Water	Continuous <ul style="list-style-type: none"> • Free Choline Weekly <ul style="list-style-type: none"> • Total Coliforms • E. coli • Heterotrophic Plate Count Quarterly <ul style="list-style-type: none"> • Nitrite • Nitrate • THM • HAA Annually <ul style="list-style-type: none"> • Sodium • Schedule 23 Reg 170/03 • Schedule 24 Reg 170/03 Every 5 years <ul style="list-style-type: none"> • Floride 	Continuous <ul style="list-style-type: none"> • Turbidity
Distribution System <ul style="list-style-type: none"> • Tupper St • Huston St • Brookside St • Gravel Rd 	Weekly <ul style="list-style-type: none"> • Total Coliforms • E. coli • Heterotrophic Plate Count 	Weekly <ul style="list-style-type: none"> • Free chlorine

4. Monitoring

The Millbrook DWS is operated by a supervisory control and data acquisition (SCADA) system. This system will instantaneously send an alarm to notify the on-call operator of any occurrences requiring attention.

5. Challenging Conditions

Increased water quality sampling and/or testing may occur during times of adverse conditions (i.e., during corrective actions associated with adverse test results) or during periods which may increase risks to the drinking water system (i.e., during system repairs). Additional sampling and testing in these conditions may include sampling for microbiological parameters or conducting field tests for free chloring residual, pH and/or turbidity.

When and existing watermain has been repaired, operators shall complete sampling, testing and monitoring to the discretion of the ORO.

6. Adverse Sample Results

The licensed laboratory that is contracted to provide testing shall provide immediate verbal notification to the Township in the event of an adverse test result. The Township then provides immediate verbal notification to Peterborough Public Health, the MECP Spills Action Centre and the owner.

7. Sampling of New Watermains

Operators or approved qualified professionals conduct all the sampling of new watermains within Millbrook. All samples will be collected as per O.Reg 170/03 and are collected after the watermain has been cleaned and disinfected as outlined in the Watermain Disinfection Procedure published by the MECP.

8. Records

All laboratory results are sent directly from the lab to the Township and stored electronically. Free residual chlorine, pH alkalinity, turbidity and /or temperature test results may be recorded in logbooks, within lab results or on Chains of Custody. Sampling, testing, and monitoring results are reviewed regularly by Management and communicated with the Owner through regular quarterly updates as well as the Annual Report for the drinking water system. All sampling and testing records are managed in accordance with QMS-05 (Document and Record Control System Procedure).

9. Related Documents

Drinking Water Management Standard - Element 16

Standard Operating Procedure- Reporting Adverse Water Quality Results

17. Measurement and Recording Equipment Calibration and Maintenance

1. Purpose

To ensure the calibration and maintenance of measurement and recording equipment. Measuring accuracy of this equipment is essential to provide quality drinking water to consumers while meeting or exceeding regulatory requirements.

2. Scope

This procedure is applicable to measuring and recording equipment used at the Millbrook drinking water system. This procedure covers the following equipment:

- Flow meters
- Level Transmitters
- On-line Chlorine residual analyzer
- On-line turbidimeter
- Portable colorimeter
- Portable turbidimeter

3. Responsibilities

The QMS Representative is responsible for creating and maintaining the verification, calibration, and maintenance schedule. Staff with the appropriate license are responsible for performing routine maintenance and calibration. Certified technicians shall be used for certain annual calibrations and for non-routine repairs. All maintenance and calibrations performed are recorded in the appropriate logbook.

4. Procedure

The frequency of calibration shall be at least that which is required by 0. Reg 170/03 or suggested by the manufacturer, whichever is most frequent. If monitoring equipment is dropped or damaged, the equipment shall be verified and/or calibrated and repaired if required before being put back into service.

All calibration and maintenance shall be performed according to manufacturer's instructions and shall be recorded in the applicable logbook.

5. List of equipment

Monitoring Parameter and Location	Equipment	Calibrations Schedule	Calibration Technician	Calibration Method
Free Chlorine Residual x2 Wellhouse	On-line	Daily Annually	Operator Certified Technician	Comparative
Turbidity Wellhouse	On-line	Quarterly Annually	Operator Certified Technician	Comparative
Flow Well 1 Well 2 Well 3	Magnetic Flow Meter	Annually	Certified Technician	
Flow Wellhouse	Flow Meter	Annually	Certified Technician	
Free Chlorine Residual Distribution System	Portable Colorimeter	Quarterly Annually	Operator Certified Technician	Comparative
pH	Portable pH Meter	Daily	Operator	According to manufacturer directions
Turbidity	Portable Turbidimeter	Quarterly Annually	Operator Certified Technician	Comparative

6. Related Documents

Drinking Water Management Standard - Element 17

Associated equipment manuals

18. Emergency Management

1. Purpose

To document a procedure to maintain a state of emergency preparedness, including:

- A list of potential emergency situations or service interruptions
- A process for emergency response and recovery
- Emergency response training and testing requirements
- Owner and Operating Authority responsibilities during emergency situations
- References to municipal emergency planning measures
- An emergency communication protocol and an up-to-date list of emergency contacts.

This procedure shall include all potential emergency situations or service interruptions for the Township of Cavan Monaghan DWS.

Should a drinking water-related emergency go beyond the scope of this procedure, the Township of Cavan Monaghan Emergency Response Plan shall take precedence.

2. Procedure

1. The Risk Assessment Procedure shall be used for identifying potential emergency situations that may arise.
2. Sources of information for identifying potential emergencies may include but are not limited to:
 - Ministry of the Environment and Parks (MECP) inspections
 - DWQMS Internal/External Audits
 - Records of past emergencies
 - Health and Safety reviews
 - Water Operator observations

Potential Emergencies

3. The ability to respond rapidly and correctly in the event of an emergency will assist in protecting users of the system, prevent additional complications, and reduce costs. Both the Director of Public Works and the Water Wastewater Technician shall have certification in basic emergency management training.

Potential Emergency or Service Interruptions
Loss of raw water supply
Fire at Water Treatment Plant
Loss of essential supply
Terrorism, vandalism, security of infrastructure (cybersecurity)
Pandemic or staff shortage

DWQMS Operational Plan

Severe Storm
SCADA and communication failure
Loss of power, generator failure (extended)
Low pressure in distribution system
Adverse water quality advisory
Flood
Drought
Well pump failure
Improper disinfection
Major/minor watermain break
Loss of standpipe supply

Response and contingencies to all the above-mentioned potential emergency or service interruptions may be referenced or found within the Risk Assessment Outcomes table.

Emergency Response and Recovery

4. Overall emergency response and recovery shall be the responsibility of the Overall Responsible Operator (ORO). The Owner shall be notified in the event that water quality poses a health risk to consumers and a boil/drinking water advisory of drinking water must be issued.
5. The ORO shall communicate all adverse water quality event(s)/result(s) to the Director of Public Works and the CAO (Top Management) by email indicating the nature of the event and corrective action(s) taken. Within a twenty-four (24) hour period or when reasonably possible, both the Director of Public Works and CAO (Top Management) shall respond to the ORO confirming that they have received the notification of adverse water quality. All sampling, testing and monitoring results are available to the Owner upon request at the Municipal Office.

Township of Cavan Monaghan Emergency Response Plan:

6. The Township emergency plan takes effect when the emergency is defined as situations or the threat of impending situations abnormally affecting property and the health, safety and welfare of a community, which by their nature or magnitude require a controlled and coordinated response by a number of agencies under the direction of the Municipal Control Group (MCG). These are distinct from normal, day-to-day operations carried out by the first response agencies or municipal agencies.

Emergency Contacts

7. The Emergency and Contingency Phone Number list can be found electronically on the Township’s shared drive and a hard copy can be found in the Public Works Department.
8. A copy of The Cavan Monaghan’s Emergency Response Plan can be found on the shared drive or a hard copy at the Municipal Office.

Responsibilities During Emergencies

Below illustrates the responsibilities of each position during emergencies within the drinking water system:

Title	Responsibilities
Chief Administrative Officer	<ul style="list-style-type: none"> • Owner representative during emergency situations. • Chief liaison between operating authority and the Owner (Council) • The lead for providing information to the public and media if required.
Director of Public Works	<ul style="list-style-type: none"> • Communicate emergencies to the Town Manager as required. • Overall safety of staff. • Lead for managing the emergency.
Water Wastewater Technician	<ul style="list-style-type: none"> • Ensure water quality and quantity to consumers. • Communicate emergencies to Top Management when required.
Senior Water Wastewater Operator	<ul style="list-style-type: none"> • ORO of the DWS. • Communicate emergencies to Top Management when required.
Water Wastewater Operator	<ul style="list-style-type: none"> • To perform response and recovery activities as directed.

Emergency Response Training

9. All Public Works staff shall receive general emergency training annually. This training shall include but not limited to:
 - a. A review and discussion of emergencies that occurred since the previous training.
 - b. A review of the Emergency Management Procedure.
10. Any recommended revisions to the Emergency Management Procedure or emergency response procedures shall be completed as per the Document Control Procedure.
11. Debriefing shall occur after every emergency or service interruption and recorded through meeting minutes.

Emergency Response Testing

12. At a minimum, at least one (1) emergency response procedure shall be tested with staff annually. Testing may be either practical or a table-top exercise. This testing shall be managed, arranged, and recorded. The validity of the emergency response procedure shall be tested by discussing the emergencies that have occurred since the previous training.

Municipal Emergency

13. In the event of a Municipal Emergency, all planning measures, communication protocols, roles and responsibilities and a list of emergency contacts can be found within the Township of Cavan Monaghan Emergency Response Plan. The Emergency Response Plan is found electronically on the shared drive or hardcopy at the Municipal Office.