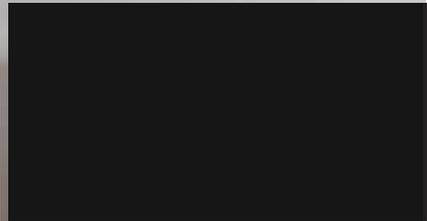MUNICIPALITY OF BRIGHTON

QUALITY MANAGEMENT SYSTEM - OPERATIONAL PLAN

January 20, 2021 Revision 13

Table 1 Record of Revision

REVISION NUMBER	REVISED PAGES	DATE OF REVISION	REVISED BY
1.0	ALL	April 2009	
2.0	SLD-05A	February 12, 2010	K. Martin
3.0	R.A. Tables	June 7, 2010	K. Martin
4.0	Annual Update	April 27, 2011	K. Martin
5.0	Element 6 (per CAR 02-2011)	October 20, 2011	K. Martin
6.0	SLD-05B	February 2013	C. Chisholm
7.0	ALL	February 2013	C. Chisholm
8.0	Risk Assessment Table	July 2014	C. Chisholm
9.0	ALL	February 11, 2016	AF
10.0	Organization Structure Figure 9.1 pg16	May 11, 2017	R. Sparham
11.0	Updated Owner Name	February 4, 2019	P. Skopelianos
	Section 7,14, 15, 19 20		
	Delete Figure 1 Document pyramid		
	Section 13 added Essential Supplier List		
	6.2.1 – description of Ownership of Presqu'ile Park		
	Updated Section 4 QMS Rep.		
	Update job title Figure 9.1		
	Added System description to Section 6		
	Added loss of supply emergency 18.1		
12	18.0 ERP section removed and placed in SLD-18	January 15, 2020	P Skopelianos
	19.0 added SLD-21 Reference		
13	6.2 – Updated Distribution description Owner update Section 3	January 20, 2021	P. Skopelianos

Disclaimer Statement

This Operational Plan is designed for the exclusive use of the Municipality of Brighton. As stated in Section 17 of the Safe Drinking Water Act, 2002, "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)." Therefore, this Operational Plan is property of the Municipality of Brighton.

This Operational Plan has been developed with the Municipality's operating practices in mind and utilizing the Municipality's personnel to implement it. Any use which a third party makes of this Operational Plan, or any part thereof, is the responsibility of such third parties. The Municipality of Brighton accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this Operational Plan or any part thereof.

Any documents developed and owned by the Municipality, which are referred to in this Operational Plan, including but not limited to the System Level Documents, the Standard Operating Procedures, the Emergency Response Plan, the Risk Assessment Outcomes, and other policies, protocols and records, remain the property of the Municipality.

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Associated System Level Documents

SLD-05A   Control of Documents

SLD-05B   Control of Records

SLD-07   Risk Assessment and Risk Assessment Outcomes

SLD-09   Roles, Responsibilities and Authorities

SLD-10   Competencies

SLD-14   Infrastructure Management

SDL-18   Emergency Planning Procedure

SLD-19   Internal Auditing

SLD-20   Management Review

SLD-21   Continual Improvement

1.   Introduction

This Operational Plan defines and documents the Quality Management System (QMS) for the Municipality of Brighton's Drinking Water System, which is owned and operated by the Municipality of Brighton. It sets out the policies and procedures with respect to quality management in accordance with the requirements of the Province of Ontario's Drinking Water Quality Management Standard (DWQMS).

The objectives of the Municipality of Brighton's Quality Management System (QMS) are to:

- Establish policy and objectives with respect to the effective management and operation of the water system

- Understand and control the risks associated with activities and processes related to the water system

- Achieve continuous improvement of the QMS and the water system performance

This Operational Plan applies to all activities, processes, and practices related to the provision of drinking water by the Municipality of Brighton.

The numbering of this Operational Plan directly corresponds to the numbering of the elements of the DWQMS.

1.1.1   Operational Plan

The Operational Plan presents an overview of the QMS and makes reference to all applicable System Level Documents (SLDs), Standard Operating Procedures (SOPs), reference documents, records, etc, as they relate to the 21 elements of the DWQMS. This document contains:

- Statements about the Municipality's commitment to quality

- The Quality Policy

- Information about responsibilities for quality related processes

- References to other quality documents not contained in the Operational Plan

- High-level information about key areas of the quality system and the overall operation of the Municipality's water system

1.1.2   System Level Documents

System Level Documents (SLDs) detail the roles and responsibilities for each element. They specify what is required, who is responsible, when is the procedure applicable, what documentation is needed, etc. SLDs may also refer to other procedures that contain more specific information.

1.1.3   Standard Operating Procedures

Standard Operating Procedures (SOPs) detail how an activity is carried out, specifying the tools and materials (if any), locations, specific steps, etc.

1.1.4   Other Documentation

This documentation level includes all the records and documentation required to demonstrate compliance of the QMS and to track performance. These records document the results of activities carried out following SLDs and SOPs. Records include work orders, calibration records, water quality test results, etc.

Associated Documentation:

N/A

2.   Quality Management System Policy

The Quality Management System Policy establishes the principles and commitments of the Municipality of Brighton with regards to their Quality Management System.

The QMS Policy is the foundation of the Quality Management System and it relates to all activities, processes, and practices involved in the provision of safe drinking water by the Municipality.

The Municipality of Brighton's Quality Policy

The Municipality of Brighton is committed to providing safe and reliable drinking water that is compliant with the Safe Drinking Water Act and applicable regulations and legislation. We will promote an effective Quality Management System to ensure quality and consistency in all operations associated with the Drinking Water System. We will continuously review, maintain and improve our Quality Management System.

Associated Documentation:

N/A

3.   Commitment and Endorsement

The Municipality of Brighton is committed to establishing and maintaining an effective Quality Management System (QMS) for the municipal Drinking Water System. The QMS Operational Plan has been developed and implemented in accordance with the requirements of the Drinking Water Quality Management Standard (DWQMS).

The Operational Plan for the QMS has been reviewed and approved for the Municipality of Brighton by Top Management. Top Management and the Municipality of Brighton are committed to endorsing the contents of the Operational Plan and to its continual improvement. Awareness and understanding of the QMS will be communicated to relevant parties according to the procedures outlined in Section 12 of the Operational Plan, Communications.

Steps will be taken to ensure that the QMS complies with all applicable legislation and regulations and that all resources required for the maintenance and continual improvement of the system are identified and provided.

Top Management of the Municipality of Brighton has approved the QMS for the drinking water system as documented in this Operational Plan and further commits to ensuring that the QMS is regularly assessed to confirm its continued applicability and relevance.

Signature on Original   February 16, 2021

Owner   Date
Bob Casselman
CAO

Signature on Original   February 16, 2021

Top Management Preston   Date
Parkinson, Director Public
Works & Infrastructure

4.   QMS Representative

The QMS Representative is generally responsible for the upkeep of the QMS. The description below outlines the QMS Representative's roles and responsibilities as they relate to the management of the QMS and related documentation.

The responsibilities of the QMS Representative include ensuring that the procedures outlined in the Operational Plan are established and maintained. The QMS Representative will also ensure that current versions of documents related to the QMS are in use. The procedures outlined in Section 5 of the Operational Plan, Document and Records Control, will be used to ensure that all personnel have access to the most current versions of QMS documentation.

The QMS Representative is also responsible for ensuring that personnel are aware of all applicable legislative and regulatory requirements that apply to their responsibilities for the operation of the water supply system.

It is the responsibility of the QMS Representative to promote awareness of the QMS to all Municipality of Brighton personnel. The awareness of the QMS will be promoted to personnel through internal training sessions, internal audits, and management review meetings with Top Management. The performance of the QMS and any continuous improvement activities will be discussed with members of Top Management.

The QMS Representative Role is under a Service Agreement with PUG Services Corp. and is performed by the Quality Assurance Manager.

A detailed description of the roles and responsibilities of the QMS Representative is also included in Section 9, Organizational Structures, Roles, Responsibilities and Authorities.

Associated Documentation:

Brighton QMS Representative Service Agreement

5. Documents and Records Control

This Section outlines the procedures followed to ensure that documents and records pertaining to the provision of safe drinking water are maintained and controlled.

Documents are the procedures, forms and templates required for the effective implementation of the QMS. Any modifications to documents shall be recorded as described in the procedure.
Staff shall ensure that only the current versions of documents are being used at all times.

Records are snapshots of the activities that take place, such as operational records for flushing, maintenance and repairs. Records cannot be modified.

Procedures for documents and records control have been established to describe the methods and activities for ensuring that documents and records are properly managed. These are included in System Level Documents *SLD-05A-Control of Documents* and *SLD-05B-Control of Records.*
Documents and records shall be stored, protected, retained and disposed of in accordance with these SLDs.

Associated Documentation:

SLD-05A-Control of Documents

SLD-05B-Control of Records List of Documents

6. Drinking-Water System

This Section presents an overview of the main components of Municipality of Brighton's water treatment and distribution systems.

6.1 Owner and Operating Authority

The Brighton drinking water system is owned and operated by the Corporation of the Municipality of Brighton. Under the DWQMS, the Owner of the system is defined as the Chief Administrative Officer.

6.2 System Description and Treatment Processes

The Brighton Community water supply system is a Large Municipal Residential System. It consists of three (3) non-GUDI wells, a primary disinfection system, storage and secondary disinfection. The system is fully SCADA operable, with manual operations as a back up. Standby power consists of an auto- start generator for complete plant operations

Well Field

The field consist of three production wells, each permitted to deliver 24.9 L/s into the treatment/storage facility. Provisions have been made to install a fourth well, should future demands make such necessary.

Each production well has three adjacent monitoring wells. These wells trend aquifer well levels so as to provide an early indication of the risk of the wells becoming GUDI.

Treatment & Storage

The treatment and storage facility consist of a $390m^2$ building with a $5600m^3$ storage facility. Water flows from the wells, flows though a rate flow control valve and is initially diverted to waste through a waste header, then after a pre-set time to the inlet header. Wasting is provided as on pump start up as apparent turbidity may be present in the form of fine graded sand particles.

Primary disinfection is accomplished by dosing with chlorine into the inlet header immediately downstream of the pump connections. Water from the inlet header is then directed towards wither of the two (2) reservoirs.

Secondary disinfection is provided by dosing chlorine into the distribution system header.

Distribution System

The distribution system provides drinking water to approximately 6,000 residents through a network of approximately 55 km of piping, of which 2,500 are residential dwellings and

200 commercial accounts. Additionally the distribution system includes one (1) pressure boosting stations and one (1) pressure and chlorine booster station. Both stations include duty and standby centrifugal pumps.

6.2.1   Operational Subsystems

The Municipality of Brighton supplies Water to Presqu'ile Provincial Park. The Provincial Parks of Ontario are agency owned and governed by the Province of Ontario.   A rechlorination facility near the park entrance can provide secondary disinfection for that portion of the distribution system if required.

BRIGHTON COMMUNITY WATER SUPPLY DISINFECTION SYSTEM
PROCESS AND INSTRUMENTATION DIAGRAM

6.3   Process Flow Chart

7.   Risk Assessment

A risk assessment process has been established to collectively identify, assess, rank and prioritize potential drinking water related hazards and related risks. Where possible, the process also identifies ways to mitigate and/or eliminate potential risks within the drinking-water system.

The Risk Assessment applies to the entire drinking water system within the Municipality of Brighton. The focus of the assessment is on risks to water quality and water quantity (capacity).

The Risk Assessment will be conducted once every 36 months. The Risk Assessment shall also be verified at least once per calendar year to ensure currency of the information and assumptions used in the assessment.

The methodologies and approach taken to conduct the risk assessment are described in detail in the procedure *SLD-07-Risk Assessment and Risk Assessment Outcomes*.

Associated Documentation:

SLD-07-Risk Assessment and Risk Assessment Outcomes

8.   Risk Assessment Outcomes

This Section describes the approach taken by the Municipality to document the outcomes of the risk assessment activities undertaken as part the risk assessment procedures identified in Section 7.

The outcomes of the risk assessments shall be documented in the *Risk Assessment Table* and the *Critical Control Points Table*. These risk assessment tables include all hazards and hazardous events, their assessed values, and existing control measures to mitigate them.

The outcomes are documented in the risk assessment tables every time the Risk Assessment is conducted or verified. The risk assessment tables shall be maintained in accordance with the guidelines identified in Section 5, Document and Records Control.

Associated Documentation:

Risk Assessment Table

Critical Control Points Table
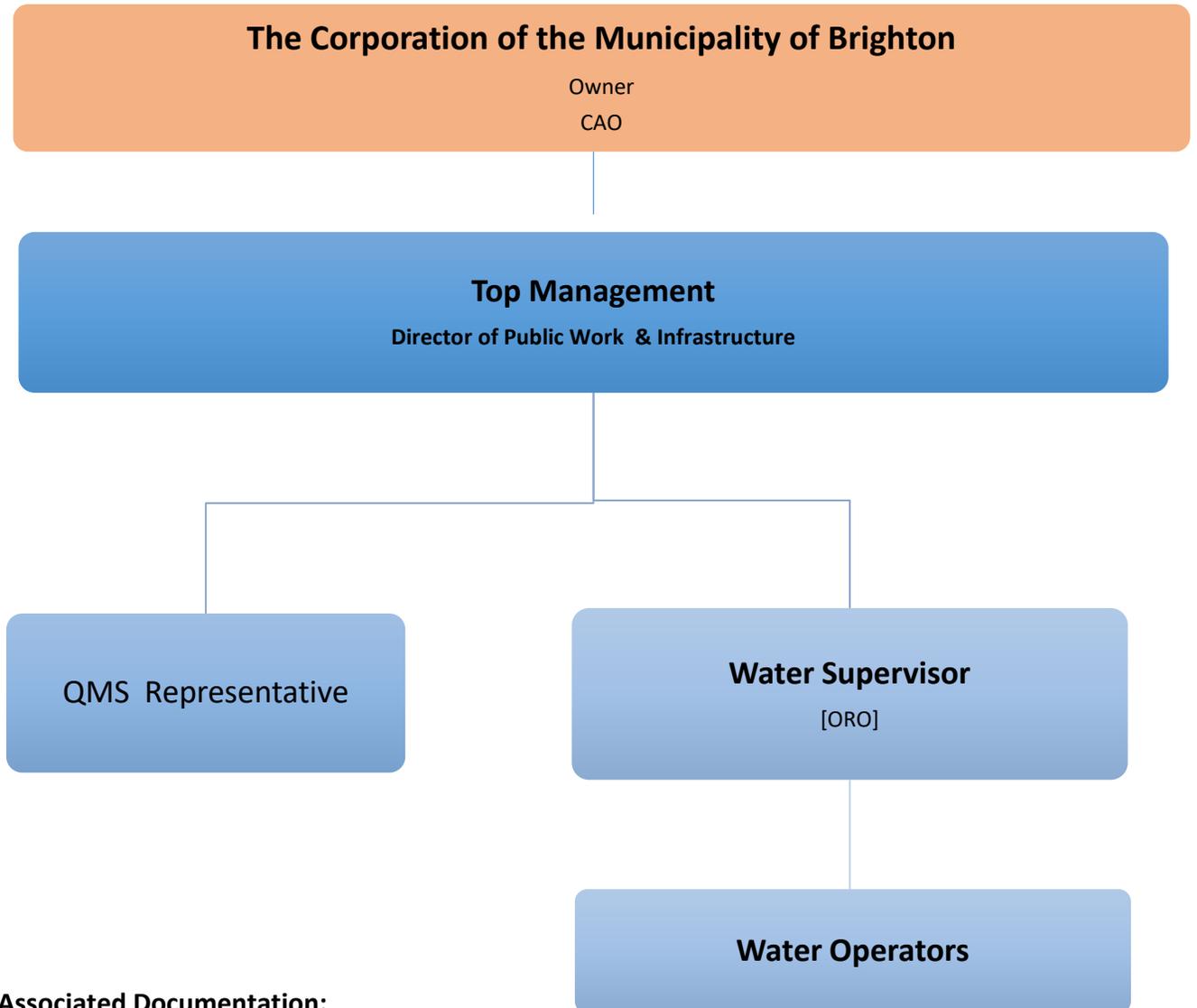
SLD-07-Risk Assessment and Risk Assessment Outcomes

9. Organizational Structure, Roles, Responsibilities and Authorities

This section outlines the organizational structure of the Operating Authority, as well as the roles, responsibilities, and authorities that relate to the operation and performance of the Municipality's QMS. This Section and all associated procedures apply to The Owner, The Operating Authority, and all contracted agents.

The structure of the Operating Authority and roles and responsibilities of personnel, as they relate to drinking water quality, are included in *SLD–09–Organizational Structure, Roles & Responsibilities*.

The organizational structure is shown below in Figure 9-1.

Table 2 organizational Structure

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┌─────────────────────────────────────────────────────────┐
│      The Corporation of the Municipality of Brighton      │
│                          Owner                            │
│                           CAO                             │
└─────────────────────────────────────────────────────────┘
                             │
┌─────────────────────────────────────────────────────────┐
│                     Top Management                        │
│           Director of Public Work  & Infrastructure       │
└─────────────────────────────────────────────────────────┘
             │                              │
┌────────────────────────┐      ┌────────────────────────┐
│                        │      │     Water Supervisor    │
│    QMS  Representative  │      │          [ORO]          │
│                        │      │                        │
└────────────────────────┘      └────────────────────────┘
                                              │
                                ┌────────────────────────┐
                                │                        │
                                │     Water Operators     │
                                │                        │
                                └────────────────────────┘
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Associated Documentation:

Job Descriptions

SLD–09–Organizational Structure, Roles & Responsibilities

QMS Service Contract

10. Competencies

This Section and associated documentation identify how the Municipality of Brighton ensures that personnel remain competent.

It applies to the performance and management of all personnel whose roles and responsibilities affect the provision of safe drinking water for the Municipality.

Competencies and skill levels required for all personnel directly affecting drinking water are described in *SLD-10-Competencies*.

Associated Documentation:

SLD-10-Competencies

11. Personnel Coverage

This Section relates to procedures followed to ensure that competent individuals are available to fulfill the responsibilities needed for the ongoing operation of the drinking water system, and the maintenance of the Municipality's QMS.

The Municipality of Brighton will ensure that competent personnel are available at all times to fulfill duties required to ensure the quality/quantity of safe drinking water in the Municipality. This includes ensuring that positions requiring back-up personnel have an appropriate number of qualified and competent replacements, and ensuring employees have access to all tools and resources needed to perform their roles.

The water treatment plant is monitored by a SCADA system. The SCADA system consists of alarms, which are programmed to alert an answering service. The answering service calls the on- call operator. The on-call schedule is developed annually by the Supervisor. There are three operators that are in rotation for the on-call schedule. The on-call operator is the designated Operator-In-Charge (OIC) and will respond to and investigate all alarms in a timely manner. In an emergency the OIC will contact the ORO. The ORO is available by cell phone at all times. If the Water Supervisor who is normally the ORO is away then he will designate an ORO according to the requirements described in the O&M Manual.

Associated Documentation:

O&M Manual – Designated Alternate for Overall Responsible Operator

12. Communications

This Section identifies the process to communicate information related to the Municipality's QMS. This Section applies to all internal and external communication related to the Municipality of Brighton's drinking water QMS.

The QMS Representative will be responsible for ensuring that QMS related information is communicated to the appropriate internal and external parties.

12.1 Internal Communication

The QMS Operational Plan will be made available to all Municipality of Brighton personnel involved in the provision of safe drinking water including new, part-time and temporary employees. The Operational Plan will be stored on the Public Works server as a PDF document. Access to the Operational Plan will be provided by the QMS Representative upon request.

For new hires, awareness QMS training will be provided. Existing employees will be notified of changes to the QMS. Internal training sessions will also be organized to identify and review this documentation and ensure that personnel understand the content. Attendance will be documented through sign-in sheets.

Communication between the staff (i.e. operators) and Top Management will be managed by the QMS Representative. Communication between Top Management and the Owner will occur as part of regular DWQMS Meetings.

Information documented as a result of Management Review Meetings will be forwarded to the Owner in the form of a formal report that includes details such as updates on progress and actions taken.

12.2 External Communication

The QMS Policy will be made available to all suppliers and service providers during the tender process and via an annual communication fax. The QMS policy will be made available to the public via the Municipality of Brighton's website, or by other means upon request.

Additional special communication procedures are detailed in other Operational Plan Sections if applicable.

Associated Documentation:

N/A

13. Essential Supplies and Services

This Section and associated procedures apply to all supplies and services considered essential to the supply of safe drinking water for the Municipality of Brighton.

The Municipality of Brighton maintains a *List of Essential Supplies and Services, within the O & M Manual (FR109), which* describes and/or references methods for:

- Procuring essential supplies and services

- Establishing and communicating quality expectations

- Ensuring quality expectations are met accordingly

For all supplies and services listed, municipal staff shall attempt, where possible, to multi-source and have an established, pre-approved supplier on call in cases of emergency.

The following are considered to be" *Essential Suppliers and Services"* within the context of the DWQMS and are included on the Municipal List;

- Well Maintenance

- Accredited Laboratory

- Analyzer Maintenance

- Chlorine Supplier

- SCADA Provider

- Generator Maintenance

- Telephone Answering Service

More detailed information is included in the *O&M Manual*.

Associated Documentation:

O&M Manual

14. Review and Provision of Infrastructure

This Section relates to the processes to review the adequacy of the existing and planned infrastructure needed to ensure the ongoing supply of safe drinking water.

The review of the adequacy of existing infrastructure to supply safe drinking water for the Municipality of Brighton's drinking water system is conducted following the procedures outlined in *SLD–14–Infrastructure Management*. The results and corresponding recommendations of this review are communicated to Top Management and the Owner through the Management Review process (See Section 20, Management Review).

Associated Documentation:

Infrastructure Plan

SLD-14 Infrastructure Management

15. Infrastructure Maintenance, Rehabilitation and Renewal

This Section identifies the maintenance, rehabilitation, and renewal programs that the Municipality of Brighton has in place for its drinking water system infrastructure.

The Municipality of Brighton's infrastructure management program outlines scheduled activities to ensure all essential water system infrastructure is maintained in good working order. *SLD-14- Infrastructure Management* details the processes and activities conducted to ensure the adequacy of the infrastructure, including all maintenance, rehabilitation, and renewal/replacement programs in place.

Long Term Forecasts are maintained by Director of Public Works and Infrastructure.

Associated Documentation:

SLD-14-Infrastructure Management

Operations and Maintenance Manual – Chapter 3 Process Equipment/Infrastructure Inspection/Maintenance

16. Sampling, Testing and Monitoring

This Section refers to the sampling, testing and monitoring program for drinking water quality currently in place for the Municipality of Brighton. This Section and associated procedures apply to all sampling and testing, conducted either internally or by a third-party agent.

The Municipality of Brighton is responsible for establishing and maintaining a regular sampling, testing and monitoring program that, at a minimum, meets regulatory requirements. The procedures followed for sampling and monitoring activities carried out by the Municipality are detailed in the Sampling and Analysis section (Chapter 5) of the *Operations and Maintenance Manual*, *Annex R*, and *Annex J*.

The sampling, testing, and monitoring results, along with abnormal conditions, are communicated to the Owner through the Management Review process (See Section 20, Management Review).

Associated Documentation

Operations and Maintenance Manual – Chapter 5 Sampling and Analysis, Annex R, and Annex J

17. Measurement and Recording Equipment Calibration and Maintenance

This section describes the calibration program for all water sampling, monitoring and/or testing equipment and devices. These procedures apply to all devices, tools or equipment used within Municipality of Brighton's Public Works department used to take water quality samples and conduct water quality testing.

The Municipality of Brighton uses the several instruments, tools, devices and/or equipment for their sampling and testing activities. The frequency of calibration for each piece of equipment is outlined in the Calibrations section (Chapter 2, Section 2.4) of the *Operations and Maintenance Manual.* Measurement and recording equipment calibration and maintenance activities shall be performed by appropriately trained and qualified personnel or by a third-party calibration service provider.

17.1 Procedure

The ORO shall maintain a list of sampling, testing, and monitoring devices, and associated calibration schedules.

The ORO or designate, shall coordinate the implementation of the calibration and maintenance program with input from Operators, as appropriate.

17.1.1   Calibration and Maintenance Procedures

The calibration and maintenance procedures are performed in accordance to manufacturer's recommendations and procedures outlined in Annex Q of the *Operations and Maintenance Manual*. The ORO shall coordinate the selection and documentation of appropriate calibration methods and standards for each device.

Any device which does not meet its specified performance requirements during calibration shall be removed from service (if practical) until repaired or replaced. The failure shall be reported to the ORO as soon as possible so immediate measures can be taken to repair the issue. All actions taken during the process should be recorded in the Log Book.

17.1.2   Equipment Maintained Externally

For external services such as laboratory services, leak detection services, and pressure relief valve maintenance services, the service provider shall be responsible for maintenance and calibration of the required test equipment.

17.2   Records

All calibration records shall be maintained as per *SLD-05B Control of Records*.

Associated Documentation:

Operations and Maintenance Manual – Chapter 2, Section 2.4 Calibrations

Operations and Maintenance Manual – Annex Q

SLD-05B Control of Records

18.   Emergency Management

This Section describes the procedure used by the Municipality of Brighton's Drinking Water System to identify emergency situations, and prepare response plans to deal with these situations.

18.1   Procedure

An outcome of the risk assessment process (see Sections 7 and 8) is the identification of potential emergencies that could impact the Municipality's ability to supply safe drinking water. The *Operations and Maintenance Manual* includes the appropriate procedures for preparedness, response and recovery in case of emergency, as part of the *Contingency Plan*.

A list of *Emergency Contacts* has been developed for Municipality of Brighton to ensure that the appropriate individuals will be contacted in the event of an emergency and that the necessary actions are taken to respond to the situation. This list is kept in the *Operations and Maintenance Manual* under the *Contingency Plan Section* and is reviewed on a yearly basis to ensure that it remains current.

Potential emergencies and planning activities for the Municipality are described in SLD-18 – Emergency Response Planning & Testing

Associated Documentation:

SLD-18- Emergency Response Planning & Testing.

Municipality of Brighton's Emergency Response Plan

Operations and Maintenance Manual: Contingency Plan - Vital Resource Directory (Emergency Contact List)

Municipality of Brighton Water Emergency Communication Protocol

19. Internal Audits

This Section outlines the approach for conducting internal audits of the Municipality of Brighton's QMS to ensure proper implementation and continual conformance to the requirements of the DWQMS.

At a minimum, the entire QMS will be audited once every calendar year. The procedure followed by the Municipality to conduct an Internal Audit is explained in *SLD-19-Internal Auditing.*

Associated Documentation:

SLD-19-Internal Auditing.

SLD-21- Continual Improvement

20. Management Review

This Section outlines the process by which the Municipality of Brighton periodically reviews the performance of its QMS. This Section and associated procedures apply to all Management Review meetings conducted by the Municipality of Brighton and any documentation associated with these meetings.

At a minimum, one Management Review Meeting will be conducted every calendar year to provide Top Management with the information required to review and evaluate the continued suitability, adequacy, and effectiveness of its QMS.

The QMS Representative is responsible for scheduling and coordinating the effort to bring the management team together for Management Review and ensure all the documentation and records required for this meeting are available.

At a minimum, the QMS Representative, a Top Management Rep, and the Water Supervisor will attend all scheduled management review meetings.

The procedure followed to conduct the Management Review is detailed in *SLD–20– Management Review.*

Associated Documentation:

SLD–20–Management Review.

21. Continual Improvement

This Section outlines the processes by which the Municipality of Brighton identifies, develops, and implements improvements to its QMS. The entire QMS is subject to the approaches and procedures identified in this Section of the Operational Plan.

The procedure for Continual Improvement is defined in *SLD-21-Continual Improvement.* It identifies the approach taken to define and implement corrective and prevention actions that are required as a result of the Internal Auditing and Management Review processes (See Sections 19 and 20) or that are identified as opportunities for improvement.

Associated Documentation:

SLD-21-Continual Improvement

Continual Improvement Spreadsheet

Corrective Action Request