



The Town of
Amherstburg
ONTARIO

OPERATIONAL PLAN

Amherstburg Water Distribution System



This Operational Plan is designed for the exclusive use of the system(s) specified in this Operational Plan.

This Operational Plan has been developed with The Town of Amherstburg's operating practices in mind and utilizing Amherstburg's personnel to implement it.



Any use which a third party makes of this Operational Plan, or any part thereof, or any reliance on or decisions made based on information within it, is the responsibility of such third parties. The Town of Amherstburg 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 Town of Amherstburg which are referred to in this Operational Plan (including, but not limited to, Amherstburg's QMS documents, Standard Operating Procedures, policies and Emergency Response Plan) remain the property of The Town of Amherstburg. Accordingly, these documents shall not be considered to form part of the Operational Plan belonging to the owner of a drinking-water system under Section 17 of the *Safe Drinking Water Act, 2002*.



	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Doc: OP-ToC Rev Date: 2023-10-19 Rev No. 1 Pages: 1 of 1
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QUALITY MANAGEMENT SYSTEM (QMS)		
Reviewed by: QMS Representative	Approved by: Top Management	

1. Purpose

To document the Town of Amherstburg's Quality Management System (QMS). This Operational Plan defines and documents the QMS for the Amherstburg Water Distribution System which is owned by the Town of Amherstburg and operated by the Amherstburg Public Works Department. It sets out the Town of Amherstburg's policies and procedures with respect to quality and environmental management in accordance with the requirements of the Province of Ontario's Drinking Water Quality Management Standard (DWQMS).

2. Definitions

Drinking Water Quality Management Standard (DWQMS) – means the quality management standard approved by the Minister in accordance with section 21 of the SDWA.

Operational Plan – means the operational plan required by the Director's Direction.

Quality Management System (QMS) – a system to:



- a) Establish policy and objectives, and to achieve those objectives; and
- b) Direct and control an organization with regard to quality.

3. Procedure

- 3.1 The Amherstburg Water Distribution System is owned by the Corporation of the Town of Amherstburg.
- 3.2 The Town of Amherstburg's Quality Management System (QMS) is structured and documented with the purpose of:
 1. Establishing policy and objectives with respect to the effective management and operation of the water distribution system;
 2. Understanding and controlling the risks associated with the facility's activities and processes;
 3. Achieving continual improvement of the QMS and the facility's performance.
- 3.3 The Operational Plan for the facility listed above fulfils the requirements of the MECP's DWQMS. The 21 QMS Procedures within this Operational Plan align with the 21 elements of the DWQMS.



4. Related Documents

MECP's Drinking Water Quality Management Standard
All QMS Procedures and Documents referenced in this Operational Plan

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-01 Rev Date: 2024-11-22 Rev No: 2 Pages: 2 of 2
QUALITY MANAGEMENT SYSTEM (QMS)		
Reviewed by: QMS Representative	Approved by: Top Management	

5. Revision History

Date	Revision #	Reason for Revision
2019-01-19	0	Procedure issued – Information within OP-01 was originally set out in the Main body of the Town of Amherstburg's Operational Plan (last revision #7 dated February 15, 2017).
2020-03-20	1	Correct abbreviation for the Ministry from MOECP to MECP
2024-11-22	2	Yearly Review of QMS, changes made to sections OP-08A, OP-13, OP-14, OP-15, AMB-005, Emergency Contact List

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-02 Rev Date: 2020-03-20 Rev No: 1 Pages: 1 of 2
QUALITY MANAGEMENT SYSTEM (QMS) POLICY		
Reviewed by: QMS Representative	Approved by: Top Management	

1. Purpose

To document a QMS Policy that provides the foundation for the Town of Amherstburg's Quality Management System.

2. Definitions

Quality Management System Policy – means the policy described in Element 2 developed for the Subject System or Subject Systems.

3. Procedure

- 3.1 The Town of Amherstburg, it's Public Works Department, and entire staff is committed to the principles and objectives set out in our QMS Policy.



The Town of Amherstburg's Policy is to:

The Town of Amherstburg is committed to supplying clean, safe drinking water to all of its customers and commits to consistently meeting all applicable legislative and regulatory requirements, and customer needs. The Town of Amherstburg has implemented a Quality Management System based on the Drinking Water Quality Management Standard that will be regularly reviewed, maintained and continuously improved.

- 3.2 Our Council, Management and entire staff will act to ensure the implementation of this Policy and will monitor progress of the Quality Management System (QMS).
- 3.3 The Town of Amherstburg's QMS Policy is readily communicated and available to all Town of Amherstburg personnel, Council and the public through the Town's internal server and the Town website as part of the Operational Plan. A hardcopy of the QMS Policy is posted as specified in the OP-05 Document and Records Control procedure.
- 3.4 Essential suppliers and service providers are advised of the Town of Amherstburg's QMS Policy as per the OP-13 Essential Supplies and Services procedure.



4. Related Documents

Current QMS Policy
OP-05 Document and Records Control
OP-13 Essential Supplies and Services

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-02 Rev Date: 2020-03-20 Rev No: 1 Pages: 2 of 2
QUALITY MANAGEMENT SYSTEM (QMS) POLICY		
Reviewed by: QMS Representative		Approved by: Top Management

5. Revision History

Date	Revision #	Reason for Revision
2019-01-19	0	Procedure issued
2020-03-20	1	Correct abbreviation for the Ministry from MOECP to MECP

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-03 Rev Date: 2023-08-28 Rev No: 2 Pages: 1 of 2
COMMITMENT AND ENDORSEMENT		
Reviewed by: QMS Representative	Approved by: Top Management	

1. Purpose

The purpose is to document the endorsement of the Operational Plan for the Amherstburg Water Distribution System by The Town of Amherstburg's Public Works Department Top Management and to set out when re-endorsement would be required.

2. Definitions

Top Management – a person, persons or a group of people at the highest management level within an Operating Authority that makes decisions respecting the QMS and recommendations to the Owner respecting the Subject System or Subject Systems.

3. Procedure

3.1 The Operational Plan is provided to The Town of Amherstburg's Top Management, and Council for endorsement. The signed written endorsement is presented in Appendix OP-03A. At a minimum, two members of Top Management must endorse the Operational Plan; however, the Operational Plan is made available to all members of Top Management in the specified document control location (refer to OP-05 Document and Records Control). Endorsement by The Town of Amherstburg's Public Works Department Top Management is represented by the Director of Engineering and Public Works, the Manager of Environmental Services and the Supervisor of Environmental Services.



3.2 Any major revision of the operational plan will be re-endorsed by Amherstburg Public Works Department Top Management and Council. Major revisions include:

1. A revision to The Town of Amherstburg's QMS Policy;
2. A change to both representatives of the facility's Top Management and/or both of the Owner's representatives that endorsed the Operational Plan;
3. A modification to the drinking water system processes/components that would require a change to the description in OP-06 Drinking Water System;
4. The addition of a drinking water subsystem owned by the same Owner to this operational plan.

Any other changes would be considered a minor change and would not require the Operational Plan to be re-endorsed.

4. Related Documents

OP-03A Signed Commitment and Endorsement
 OP-05 Document and Records Control
 OP-06 Drinking Water System

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-03 Rev Date: 2023-08-28 Rev No: 2 Pages: 2 of 2
COMMITMENT AND ENDORSEMENT		
Reviewed by: QMS Representative	Approved by: Top Management	

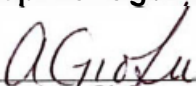
5. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued – Information within OP-03 was originally set out in the main body of The Town of Amherstburg’s Operational Plan (last revision #7 dated February 15, 2017).
2022-06-09	1	A change to representatives of the facility’s Top Management and the Owner’s representatives that endorsed the Operational Plan
2023-08-28	2	A change to representatives of the facility’s Top Management and the Owner’s representatives that endorsed the Operational Plan

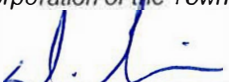
		OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Doc: OP-03A Rev Date: 2023-08-28 Rev No: 2 Pages: 1 of 1
SIGNED COMMITMENT AND ENDORSEMENT			
Reviewed by: QMS Representative		Approved by: Top Management	

This Operational Plan sets out the framework for The Town of Amherstburg's Quality Management System (QMS) that is specific and relevant to the drinking water system(s) and supports the overall goal of the Corporation of the Town of Amherstburg to provide safe, cost-effective drinking water through sustained cooperation. Amherstburg Public Works Department will be responsible for developing, implementing, maintaining and continually improving its QMS with respect to the operation and maintenance of the Amherstburg Water Distribution System and will do so in a manner that ensures compliance with applicable legislative and regulatory requirements.

**Amherstburg Public Works Department
Top Management Endorsement**



 Antonietta Gioia
 Director of Engineering and Public Works
 Corporation of the Town of Amherstburg

Aug 29, 23
 Date

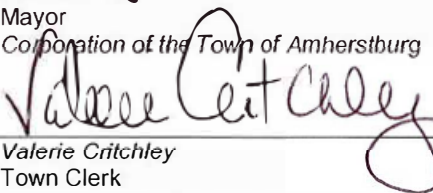

 Dwayne Grondin
 Manager of Environmental Services
 Corporation of the Town of Amherstburg

Aug. 28/23
 Date

Owner Endorsement




 Michael Prie
 Mayor
 Corporation of the Town of Amherstburg

Aug 31/23
 Date


 Valerie Critchley
 Town Clerk
 Corporation of the Town of Amherstburg

Aug 31/23
 Date

The endorsement above is based on the Operational Plan that was current as of the revision date of this document (OP-03A).

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-04 Rev Date: 2019-01-18 Rev No: 0 Pages: 1 of 1
QUALITY MANAGEMENT SYSTEM (QMS) REPRESENTATIVE		
Reviewed by: QMS Representative		Approved by: Top Management

1. Purpose

To identify and describe the specific roles and responsibilities of the QMS Representative(s) for the Amherstburg Water Distribution System.

2. Definitions

None

3. Procedure

3.1 The role of QMS Representative for the Amherstburg Water Distribution System is the Manager of Environmental Services. The Director of Engineering and Public Works will act as an alternate QMS Representative when required.

3.2 The QMS Representative is responsible for:



- Administering the QMS for the Amherstburg Water Distribution System by ensuring that processes and procedures needed for the facility's QMS are established and maintained;
- Reporting to Top Management and Council on the facility's QMS performance and identifying opportunities for improvement;
- Ensuring that current versions of documents related to the QMS are in use;
- Promoting awareness of the QMS to all operations personnel; and
- In conjunction with Top Management and Council, ensuring that operations personnel are aware of all applicable legislative and regulatory requirements that pertain to their duties for the operation of the system.

4. Related Documents

None

5. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued – Information within OP-04 was originally set out in the main body of Amherstburg Water Distribution System's Operational Plan (last revision #7 dated February 15, 2017).

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-05 Rev Date: 2023-09-08 Rev No: 1 Pages: 1 of 3
DOCUMENT AND RECORDS CONTROL		
Reviewed by: QMS Representative	Approved by: Top Management	

1. Purpose

To describe how the Amherstburg Water Distribution System's QMS documents are kept current and how QMS documents and records are kept legible, readily identifiable, retrievable, stored, protected, retained and disposed of. This applies to QMS Documents and QMS records pertaining to the Amherstburg Water Distribution System, as identified in this procedure.

2. Definitions

Document – includes a sound recording, video tape, film, photograph, chart, graph, map, plan, survey, book of account, and information recorded or stored by means of any device

Record – a document stating results achieved or providing proof of activities performed

QMS Document – any document required by Amherstburg Water Distribution System's QMS as identified in this procedure

QMS Record – any record required by Amherstburg Water Distribution System's QMS as identified in this procedure

Controlled – managed as per the conditions of this procedure

Retention Period – length of time that a document or record must be kept; starts from the date of issue for QMS records or from the point of time when a QMS document is replaced by a new or amended document



3. Procedure

- 3.1 Documents and records required by Amherstburg Water Distribution System's QMS and their locations are listed in Appendix OP-05A Document and Records Control Locations.
- 3.2 Internally developed QMS documents and QMS records (whenever possible) are generated electronically to ensure legibility and are identified through a header/title and issue date. Handwritten records must be legible and permanently rendered in ink or non-erasable marker.
- 3.3 Controls for the Operational Plan include the use of authorized approval, alpha-numeric procedure code, issue date, page numbers on every page, revision number and revision history.

Authorized personnel for review and approval of this Operational Plan are:

Review: QMS Representative(s)

Approval: Top Management

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-05 Rev Date: 2023-09-08 Rev No: 1 Pages: 2 of 3
DOCUMENT AND RECORDS CONTROL		
Reviewed by: QMS Representative	Approved by: Top Management	

- 3.4 The QMS Representative is responsible for ensuring that current versions of QMS documents are being used at all times. Current QMS documents and records are readily accessible to operations personnel and to internal and external auditors/inspectors at established document control locations. The currency of internal documents is ensured by comparing the date on the document to that of the master hardcopy and/or electronic copy residing in the designated document control location(s) specified in Appendix OP-05A.

Document control locations are established in areas that provide adequate protection to prevent unauthorized use/access, damage, deterioration or loss of QMS documents and records. Copies of QMS documents and records located outside of designated control locations are considered uncontrolled.



- 3.5 Access to Amherstburg Water Distribution System's computer network infrastructure is restricted through use of individually-assigned usernames and passwords and local area servers. Network security is maintained by the Town of Amherstburg's Information & Technology Department through a number of established mechanisms and practices such as daily back-up of files stored on servers, password expiry, limitations on login attempts and policies outlining specific conditions of use.

Access to facility QMS records contained within internal electronic databases and applications is administered by designated application managers/trustees, requires the permission of Manager of Environmental Services and is restricted through use of usernames and passwords. Records are protected by means of regular network back-ups of electronic files stored on servers and/or within databases.

- 3.6 Any employee of the drinking water system may request (in writing) to the QMS Representative, a revision be made to improve an existing internal QMS document or the preparation of a new document. Written requests should indicate the reason for the requested change. The need for new or updated documents may also be identified through the Management Review or system audits.

The QMS Representative communicates any changes made to QMS documents to relevant operations personnel and coordinates related training (as required). Changes to controlled QMS documents are communicated and distributed through e-mails, memos and facility-level training sessions.

- 3.7 When a QMS document is superseded, the hardcopy of the document is promptly removed from its location and forwarded to the QMS Representative for disposal or retention (as appropriate).
- 3.8 The authorized method for disposal of hardcopy documents and records after the specified retention requirements have been met is shredding.
- 3.9 QMS documents and records are retained in accordance with applicable regulations and legal instruments. Relevant regulatory and corporate minimum retention periods are as follows:

		OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-05 Rev Date: 2023-09-08 Rev No: 1 Pages: 3 of 3
DOCUMENT AND RECORDS CONTROL			
Reviewed by: QMS Representative		Approved by: Top Management	

Type of Document/Record	Minimum Retention Time	Requirement Reference
DWQMS Operational Plan	10 years	Director's Direction under SDWA
Internal QMS Audit Results	10 years	Town of Amherstburg Requirement
External QEMS Audit Results	10 years	Town of Amherstburg Requirement
Management Review Documentation	10 years	Town of Amherstburg Requirement
Documents/records required to demonstrate conformance with the DWQMS (specifically all the documents/records listed in Table 1)	3 years*if no specified legislative requirement below*	Town of Amherstburg Requirement
Log Books or other record-keeping mechanisms	5 years	O. Reg. 128/04
Training Records for water operators and water quality analysts	5 years	O. Reg. 128/04
Flow Meter Calibration Records, Analyzer Calibration Reports Maintenance Records/Work Orders	2 years	O. Reg. 170/03



3.10 The Operational Plan is reviewed for currency by the QMS Representative during internal/external audit and Management Review processes. Other QMS-related documents are reviewed as per the frequencies set out in this Operational Plan or as significant changes (e.g., changes in regulatory requirements, corporate policy or operational processes and/or equipment, etc.) occur. QMS documents and records are reviewed for evidence of control during each internal system audit as per OP-19 Internal QMS Audits.

4. Related Documents

OP-05A Document and Records Control Locations
OP-19 Internal QMS Audits
OP-20 Management Review Minutes



5. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued
2023-09-08	1	Procedure issued

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Doc: OP-05A Rev Date: 2019-01-18 Rev No: 0 Pages: 1 of 2
DOCUMENT AND RECORDS CONTROL LOCATIONS		
Reviewed by: QMS Representative		Approved by: Top Management

Designated locations for documents and records required by Amherstburg Water Distribution's QMS



Type of Document/Record	Designated Document Control Location (HC = Hardcopy, E = Electronic)
Internal QMS Documents	
Operational Plan (includes QMS Procedures)	HC - Manager of Environmental Services Office E - Public Works Common Drive
QMS Policy	E – Town of Amherstburg's Public Works internal server and public website HC - Public Works Front Entrance Way
Standard Operating Procedures (referenced in Operational Plan and QMS Procedures)	HC - Manager of Environmental Services Office E - Public Works Common Drive
Amherstburg Work Order Form	HC - Manager of Environmental Services Office
Watermain Blow-Off Flushing Form	HC - Manager of Environmental Services Office E - Public Works Common Drive
Watermain Blow-Off Flushing Schedule	HC - Manager of Environmental Services Office E - Public Works Common Drive
Fire Hydrant Flushing - Maintenance Form	HC - Manager of Environmental Services Office E - Public Works Common Drive
Valve and Meter Chamber Inspections	HC - Manager of Environmental Services Office E - Public Works Common Drive
Equipment Checklist	HC - Manager of Environmental Services Office E - Public Works Common Drive
Calibration Checklist	HC - Manager of Environmental Services Office E - Public Works Common Drive
Corrective Action Request Form	HC - Manager of Environmental Services Office E - Public Works Common Drive
Annual Summary of Water Programs - Activities	HC - Manager of Environmental Services Office E - Public Works Common Drive
External QMS Documents	
Maintenance/equipment manuals	HC - Manager of Environmental Services Office
Capital Budget	HC – Manager of Environmental Services Office
Locate Sheets	E – Utility Dispatch Software
Drinking Water Works Permit	HC - Operations Manual E - Manager of Environmental Services Office
Permit to Take Water	HC - Operations Manual E - Manager of Environmental Services Office
Operator certificates	HC - Operations Manual E - Manager of Environmental Services Office
DWQMS Standard	E - https://www.ontario.ca

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Doc: OP-05A Rev Date: 2019-01-18 Rev No: 0 Pages: 2 of 2
DOCUMENT AND RECORDS CONTROL LOCATIONS		
Reviewed by: QMS Representative		Approved by: Top Management

Applicable federal and provincial legislation and municipal by-laws	E - Online at www.e-laws.gov.on.ca
By-Law 2012-119 (Municipal Emergency Plan)	HC - Manager of Environmental Services Office
QMS Records	
Daily Work Schedule Signed Off	HC - Manager of Environmental Services Office
Operator Training Certificates	HC – Public Works Department
Operator Training Records	HC - Manager of Environmental Services Office
Completed Work Orders	HC - Manager of Environmental Services Office
Calibration Records	HC - Manager of Environmental Services Office
Watermain Blow-Off Flushing Records	HC - Manager of Environmental Services Office
Fire Hydrant Flushing – Maintenance Records	HC - Manager of Environmental Services Office
In-house Chlorine Residuals	HC - Manager of Environmental Services Office
Leak Detection Results	HC - Manager of Environmental Services Office
Internal / External QMS audit reports	HC - Manager of Environmental Services Office
Management Review Meeting Minutes / Records	HC - Manager of Environmental Services Office
Annual Reports	HC - Manager of Environmental Services Office E – Town of Amherstburg website
Summary Reports	HC - Manager of Environmental Services Office E – Town of Amherstburg website
AWQI Reports	HC - Manager of Environmental Services Office E – Town of Amherstburg website
On-Call Schedule	HC - Manager of Environmental Services Office
Community Complaint Records	E – Work Order System

Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-06 Rev Date: 2023-10-19 Rev No: 2 Pages: 1 of 5
DRINKING WATER SYSTEM		
Reviewed by: QMS Representative	Approved by: Top Management	

1. Purpose

To document the following for the Amherstburg Water Distribution System:

- The name of the Owner and Operating Authority; and
- Provide a description of the system, including all applicable water sources, treatment system processes and distribution system components.

2. Definitions

Distribution System - means the part of a drinking water system that is used in the distribution, storage or supply of water and that is not part of a treatment system.

Secondary Disinfection - means a process or series of processes intended to provide and maintain a disinfectant residual in a drinking water system's distribution system, and in plumbing connected to the distribution system, for the purposes of:

- Protecting water from microbiological re-contamination;
- Reducing bacterial growth;
- Controlling biofilm formation;
- Serving as an indicator of distribution system integrity; and includes the use of disinfectant residuals from primary disinfection to provide and maintain a disinfectant residual in a drinking water system's distribution system for the purposes described in clauses (a) to (d).



Treatment System - means any part of a drinking water system that is used in relation to the treatment of water and includes,

- any thing that conveys or stores water and is part of a treatment process, including any treatment equipment installed in plumbing,
- any thing related to the management of residue from the treatment process or the management of the discharge of a substance into the natural environment from the system, and
- a well or intake that serves as the source or entry point of raw water supply for the system;

3. Procedure

3.1 Drinking Water System Overview

- The Amherstburg Area Water Distribution System is owned by the Corporation of the Town of Amherstburg which is overseen by the Mayor, Deputy Mayor, CAO, and elected Council of Amherstburg. The Town of Amherstburg Public Works Department is the Operating Authority for the Amherstburg Distribution System. Water is supplied to the Town of Amherstburg by the Amherstburg

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-06 Rev Date: 2023-10-19 Rev No: 2 Pages: 2 of 5
DRINKING WATER SYSTEM		
Reviewed by: QMS Representative	Approved by: Top Management	

Area Water Treatment Plant owned by the Corporation of the Town of Amherstburg and operated by the Ontario Clean Water Agency (OCWA).

3.2 Treatment System Description

The Amherstburg Area Water Treatment Plant is owned by the Corporation of the Town of Amherstburg and operated by the Ontario Clean Water Agency. The treatment plant is located in the Town of Amherstburg situated on the Detroit River. It is a conventional water treatment facility with a rated capacity of 18,184 m³ per day.

The water treatment facility consists of an intake system, a low lift pumping station, treatment system, underground reservoir, high lift pumping station and an elevated water storage tank supplying water to the Town of Amherstburg distribution system. The storage facilities are components of the Amherstburg Area Water Treatment Plant and are not functions of the Amherstburg Water Distribution System.



3.3 Distribution System Description

The Town of Amherstburg supplies potable drinking water to the majority of the potable water customers within the Town of Amherstburg. Additionally, the Town of Amherstburg supplies water to residents of the Town of Essex in the area bounded by County Road 12, Essex County Road 15, the 14th Concession Road of Essex and Essex County Road 11 including the Essex portion of the Hamlet of McGregor. In addition, the Town of Amherstburg supplies potable water to select residents of Essex situated on the east side of County Road 11. Town of Amherstburg also supplies potable water to select residents of Tecumseh and LaSalle situated on the north side of Essex County Road 8 and Essex on the south side of Essex County Road 8.

The water supplied by the Amherstburg Area Water Treatment Plant provides sufficient secondary disinfection to meet the regulatory requirements within the distribution system and no re-chlorination is practiced within the Amherstburg Water Distribution System. Secondary disinfection based on regulatory requirements is monitored by distribution system sample results.

Emergency water interconnections exist and are maintained by the Corporation of the Town of Amherstburg and are located in the following areas:

- Interconnections with LaSalle:
 1. County Road 20 N & Malden Road
 2. 5th Concession N & County Road 8 (left hand valve)
 3. 6th Concession N & County Road 8
- Interconnections with Essex:
 1. County Road 15 & 13th Concession
 2. County Road 15 & North Malden Road
 3. County Road 12

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-06 Rev Date: 2023-10-19 Rev No: 2 Pages: 3 of 5
DRINKING WATER SYSTEM		
Reviewed by: QMS Representative	Approved by: Top Management	

4. County Road 50 & County Road 41
5. 3rd Concession & County Road 20

These systems are owned and operated by The Town of LaSalle and The Town of Essex and will only be used in the event of an emergency or as part of testing a contingency plan.

3.4 Operational Challenges

Low pressure areas are identified by community complaints. These complaints are addressed by operational staff attending, flushing and pressure testing the subject area. Possible solutions include looping and conveyance of customers to another system.

3.5 Monitoring and Management

There are several programs within the Amherstburg Water Distribution System to ensure monitoring and management of the system. These include a water meter replacement program, a fire hydrant and blow-off program and a meter reading program.

All meters are read in a routine frequency and reading results identifying excessive readings either too high or too low are reported to operational staff and investigated.

3.6 System Infrastructure

The Town of Amherstburg operates and maintains its own watermain, valves, hydrants, and water meters. In addition, in order to ensure the quality of drinking water, the Town has dead-end flushing stations and sampling stations throughout its distribution system. Figure 1 shows the main components of the Amherstburg Water Distribution System.



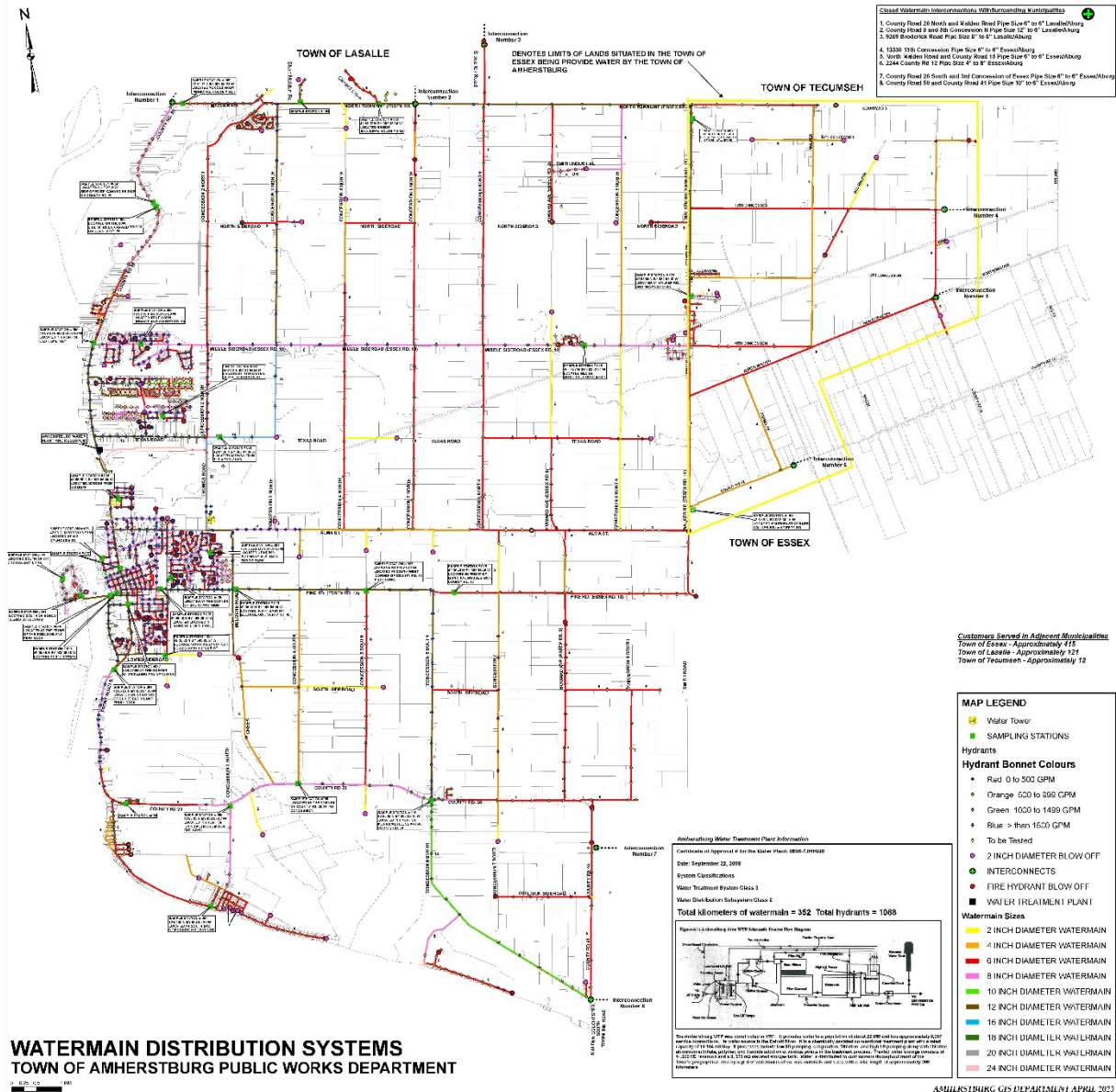


	 <h1 style="text-align: center;">OPERATIONAL PLAN</h1> <h2 style="text-align: center;">Amherstburg Water Distribution System</h2>	<p>QMS Proc.: OP-06 Rev Date: 2023-10-19 Rev No: 2 Pages: 4 of 5</p>
<h1>DRINKING WATER SYSTEM</h1>		
Reviewed by: QMS Representative	Approved by: Top Management	



Figure 1: Town of Amherstburg Watermain Distribution Systems



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DRINKING WATER SYSTEM		
Reviewed by: QMS Representative	Approved by: Top Management	

4. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued – Information within OP-06 was originally set out in the main body of Amherstburg Water Distribution System’s Operational Plan (last revision #7 dated February 15, 2017).
2022-06-09	1	Updated Watermain Distribution Systems Map
2023-10-19	2	Updated Watermain Distribution Systems Map

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-07 Rev Date: 2023-10-11 Rev No: 2 Pages: 1 of 4
RISK ASSESSMENT		
Reviewed by: QMS Representative	Approved by: Top Management	

1. Purpose³

To document the process for conducting a risk assessment to identify and assess potential hazardous events and associated hazards that could affect drinking water safety.

2. Definitions

Consequence – the potential impact to public health and/or operation of the drinking water system if a hazard/hazardous event is not controlled

Control Measure – includes any processes, physical steps or other practices that have been put in place at a drinking water system to prevent or reduce a hazard before it occurs

Critical Control Point (CCP) – *An essential step or point in the subject system at which control can be applied by the Operating Authority to prevent or eliminate a drinking water health hazard or reduce it to an acceptable level*

Drinking Water Health Hazard – means, in respect of a drinking water system

- a) a condition of the system or a condition associated with the system's waters, including any thing found in the waters,
 - i. that adversely affects, or is likely to adversely affect, the health of the users of the system,
 - ii. that deters or hinders, or is likely to deter or hinder, the prevention or suppression of disease, or
 - iii. that endangers or is likely to endanger public health,
- b) a prescribed condition of the drinking water system, or
- c) a prescribed condition associated with the system's waters or the presence of a prescribed thing in the waters



Hazardous Event – an incident or situation that can lead to the presence of a hazard

Hazard – a biological, chemical, physical or radiological agent that has the potential to cause harm

Likelihood – the probability of a hazard or hazardous event occurring

3. Procedure



- 3.1 Top Management ensures that operations personnel are assigned to conduct a risk assessment at least once every thirty-six months.
- 3.2 The QMS Representative is responsible for coordinating the risk assessment and ensuring that documents and records related to the risk assessment activities are maintained.

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3.3 The Risk Assessment team performs the risk assessment as follows:

- 3.3.1 OP-07 Risk Assessment and OP-08 Risk Assessment Outcomes are reviewed.
- 3.3.2 For each of the system's activities/process steps, potential hazardous events and associated hazards (possible outcomes) that could impact the system's ability to deliver safe drinking water are identified. At a minimum, potential hazardous events and associated hazard as identified in the most current version of the Ministry of the Environment, Conservation & Parks (MECP) document titled "Potential Hazardous Events for Municipal Residential Drinking Water Systems" (as applicable to the system type) must be considered.
- 3.3.3 For each of the hazardous events, control measures currently in place at the system to eliminate the hazard or prevent it from becoming a threat to public health are specified. Control measures may include alarms, monitoring procedures, SOPs/contingency plans, preventive maintenance activities, backup equipment, engineering controls, etc.
- 3.3.4 To ensure that potential drinking water health hazards are addressed and minimum treatment requirements as regulated by SDWA O. Reg. 170/03 and the MECP's "Procedure for Disinfection of Drinking Water in Ontario" are met, The Town of Amherstburg has established mandatory Critical Control Points (CCPs). The CCPs for the system are determined by evaluating and ranking the hazardous events for the remaining activities/process.
- 3.3.5 Taking into consideration existing control measures (including the reliability and redundancy of equipment), each hazardous event is assigned a value for the likelihood and a value for the consequence of that event occurring based on the following criteria:

Value	Likelihood of Hazardous Event Occurring
1	Rare – Estimated to occur every 20 years or more (usually no documented occurrence at site)
2	Unlikely – Estimated to occur in the range of 10 – 19 years
3	Possible – Estimated to occur in the range of 1 – 9 years
4	Likely – Occurs monthly to annually
5	Certain – Occurs monthly or more frequently

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Value	Consequence of Hazardous Event Occurring
1	Insignificant – Little or no disruption to normal operations, no impact on public health
2	Minor – Significant modification to normal operations but manageable, no impact on public health
3	Moderate – Potentially reportable, corrective action required, potential public health impact, disruption to operations is manageable
4	Major – Reportable, system significantly compromised and abnormal operations if at all, high level of monitoring and corrective action required, threat to public health
5	Catastrophic – Complete failure of system, water unsuitable for consumption



The likelihood and consequence values are multiplied to determine the risk value (ranking) of each hazardous event. Hazardous events with a ranking of 12 or greater are considered high risk.

- 3.3.6 Hazardous events and rankings are reviewed and any activity/process step is identified as an additional CCP if all of the following criteria are met:
- ✓ The associated hazardous event has a ranking of 12 or greater;
 - ✓ The associated hazardous event can be controlled through control measure(s);
 - ✓ Operation of the control measures can be monitored and corrective actions can be applied in a timely fashion;
 - ✓ Specific control limits can be established for the control measure(s); and
 - ✓ Failure of the control measures would lead to immediate notification of Medical Officer of Health (MOH) or MECP or both.

3.4 The outcomes of the risk assessment are documented as per OP-08 Risk Assessment Outcomes.

3.5 At least once every calendar year, the QMS Representative facilitates the verification of the currency of the information and the validity of the assumptions used in the risk assessment in preparation for the Management Review (OP-20). When performing this review, the following may be considered:

- Process/equipment changes
- Reliability and redundancy of equipment
- Emergency situations/service interruptions
- CCP deviations
- Audit/inspection results



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4. Related Documents

OP-08 Risk Assessment Outcomes
 OP-20 Management Review
 MECP's "Potential Hazardous Events for Municipal Residential Drinking Water Systems"
 MECP's "Procedure for Disinfection of Drinking Water in Ontario"

5. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued
2020-03-20	1	Correct abbreviation for the Ministry from MOECP to MECP
2023-10-11	2	Change in Likelihood Table timeframes

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RISK ASSESSMENT OUTCOMES		
Reviewed by: QMS Representative	Approved by: Top Management	

1. Purpose

To document the outcomes of the risk assessment conducted as per OP-07 Risk Assessment.

2. Definitions

Critical Control Point (CCP) – An essential step or point in the subject system at which control can be applied by the Operating Authority to prevent or eliminate a drinking water health hazard or reduce it to an acceptable level

Critical Control Limit (CCL) – The point at which a Critical Control Point response procedure is initiated

3. Procedure

3.1 The QMS Representative is responsible for updating the information in OP-08A Summary of Risk Assessment Outcomes as required.



3.2 The results of the risk assessment conducted as per OP-07 are documented in Table 1 of OP-08A. This includes:

- Identified potential hazardous events and associated hazards (possible outcomes) for each of the system's activities/process steps;
Note: Hazards listed in the MECP's "Potential Hazardous Events for Municipal Residential Drinking Water Systems" are indicated in the appropriate column using the reference numbers in Table 4 of OP-08A.
- Identified control measures to address the potential hazards and hazardous events; and
- Assigned rankings for the hazardous events (likelihood x consequence = risk value) and whether the hazardous event is a Critical Control Point (CCP) (mandatory or additional).
Note: If the hazardous event is ranked as 12 or higher and it is not being identified as a CCP, provide rationale as to why it does not meet the criteria set out in section 3.3.6 of OP-07).

3.3 Top Management is responsible for ensuring that for each CCP:

- Critical Control Limits (CCLs) are set;
- Procedures and processes to monitor the CCLs are established; and
- Procedures to respond to, report and record deviations from the CCLs are implemented.

The identified CCPs, their respective CCLs and associated procedures are documented in Table 2 of OP-08A.

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3.4 A summary of the results of the annual review/36-month risk assessment is recorded in Table 3 of OP-08A.

3.5 Top Management considers the risk assessment outcomes during the review of the adequacy of the infrastructure (Refer to OP-14 Review and Provision of Infrastructure).

4. Related Documents

OP-07 Risk Assessment
OP-08A Summary of Risk Assessment Outcomes
OP-14 Review and Provision of Infrastructure
MECP's "Potential Hazardous Events for Municipal Residential Drinking Water Systems"

5. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued – Information within OP-08 was originally set out in the QMS Procedure QP-02 Risk Assessment and Risk Assessment Outcomes (last revision #7 dated February 15, 2017).
2020-03-20	1	Correct abbreviation for the Ministry from MOECP to MECP





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Table 1: Risk Assessment Table

Note: Processes referred to in section 3.3.6 of OP-07 Risk Assessment must be identified as mandatory Critical Control Points (CCPs) as applicable. Mandatory CCPs are not required to be ranked.



Activity/ Process Step	MECP Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
Distribution	3/4/7	Watermain Break	Adverse Water due to contamination of potable water system	Industry Standards SOP's Monitoring and sampling Training Isolation of affected distribution system area	4	3	12	<input checked="" type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input type="checkbox"/> No
	3/4/7	20 Inch Feeder Watermain Break	Loss of water supply from plant Adverse Water due to contamination of potable water system	Industry Standards SOP's Monitoring and sampling Training Isolation of affected distribution system area	2	4	8	<input checked="" type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input type="checkbox"/> No
	8	Failed Backflow Preventer	Adverse Water due to contamination of potable water system	Positive Pressure Annual inspections and required maintenance Town By-Law 2012-08	2	4	8	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	8	Lack of Backflow Prevention on all Commercial/Industrial institutions	Adverse Water due to contamination of potable water system	Town By-Law 2012-08 Weekly sampling at testing stations Pre-build drawing review by Building Department	2	4	8	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No

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Activity/ Process Step	MECP Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
	2/1	Loss of water supply	Inadequate supply of water	Supply from Tower Supply from Reservoir Interconnects with neighbouring communities	1	5	5	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Distribution	5/6	Contaminated Supply from Water Plant / Adverse Supply	Adverse Water from Treatment Plant	Supply from Tower Supply from Reservoir Isolation valves to neighbouring system	1	5	5	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	6	Adverse in water distribution system: Low Chlorine High Chlorine High THM E-coli	Adverse water Existing dead ends Lacking of loops	Monitoring and sampling SOP's Training Industry Standards Routine flushing	3	4	12	<input checked="" type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input type="checkbox"/> No
	7	Low pressure in water distribution system (less than 20 psi)	Inadequate supply for fire protection Customer complaints Adverse samples (low chlorine)	Industry Standards Flushing Program Customer concern monitoring Infrastructure Improvements (looping) Fire Hydrant flow testing / monitoring Water Tower operations (PSI) Plant Booster pumps	2	3	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No

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Activity/ Process Step	MECP Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
	2	Defective valves (including isolation valves)	Loss of supply Inability to isolate area (non operable) Larger customer area affected	SOP's Industry Standards Training	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Distribution	6	Unauthorized use of water / hydrants (illegal use)	Cross contamination Damage to the system	Pressure testing / monitoring Water Use By-Law 2014-08	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	6/7/8	Fire Protection (legal use)	Low Pressure Potential for contamination / adverse water Damage to the water system	Fire Department Training Colour coded Fire Hydrants Industry standards	2	4	8	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	2/3/4/8/1	Natural Disasters	Watermain Break Loss of supply Adverse water	Emergency Response Program	1	5	5	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	2/7	Break watermain Under Detroit River	Adverse water Loss of water supply	Metered on mainland Sample Station on east and west sides of island Isolation Valves	1	5	5	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No

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Activity/ Process Step	MECP Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
	2/6/8	Bulk Fill Stations	Adverse water	Signage Backflow preventer Air gap	2	4	8	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Distribution	2/6/7/8	Outside Contractors	Adverse water Loss of water supply	Licensed Operator inspections Engineering inspectors Locates required prior to excavation	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	6	Vandalism	Adverse water	Locking measures in place where applicable Monitored Water Plant	1	5	5	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	1	Biofilm Formation	Adverse water	Quarterly flushing off all dead end blow-offs Yearly flushing of all fire hydrants Weekly Sampling	1	5	5	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No

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Activity/ Process Step	MECP Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
	2/6	Terrorism	Adverse water Loss of water supply Damage to the water system	Locking measures in place where applicable Monitored Water Plant Emergency Plan in place	1	5	5	<div><input type="checkbox"/> Yes – Mandatory CCP</div> <div><input type="checkbox"/> Yes – Additional CCP identified for facility</div> <div><input checked="" type="checkbox"/> No</div>

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Activity/ Process Step	MECP Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
Distribution	2/4/7	Aging Infrastructure	Adverse water Loss of water supply	Licensed Operator inspections Emergency preparedness Watermain replacement schedules Engineering inspectors Locates required prior to excavation	3	2	5	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	2/8	Improper Disinfection of Watermains	Adverse water Burning of rubber gaskets	Follow Disinfection Procedure appropriately Experienced operators on-site	1	5	5	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	2/5/7/8	Personnel Error	Adverse water Loss of water supply Damage to the water system	SOPs for all procedures Educated and experienced staff	1	4	5	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	1/4	Sustained Extreme Temperatures	Adverse water Loss of water supply	Monitored Water Plant for flows Watering bans	2	5	4	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No

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Activity/ Process Step	MECP Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
Distribution	2	Pandemic	Loss of staff	Licensed operator cohorts PPE Town Vaccine Policy Vehicle Disinfection Policy Daily screening OCWA operators	1	4	4	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	2/8	Private Residence Cross-Contamination	Adverse water	Building Code- outside tap backflow prevention Rural watermain inspection and form for well/ cistern disconnection	2	4	8	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	9	Cybersecurity	Loss of meter reading data, historical work orders, DWQMS electronic files	Water billing agent house data, Town's IT security and policies	2	4	8	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No



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Table 2: Identified Critical Control Points (CCPs)

CCP	Critical Control Limits	Monitoring Procedures	Response, Reporting and Recording Procedures
Watermain Break	Adverse Water Sample as indicated by local Health Unit	– Lab Sample Results	Refer to; SOP- AMBP - 107 Watermain Break Repairs
Adverse in water distribution system	Adverse Water Sample as indicated by local Health Unit	– Lab Sample Results	Refer to; SOP- AMBP – 111 Adverse Water Quality Incident

Note: Standard Operating Procedures (SOPs) referenced in Tables 1 and 2 are controlled as per OP-05 Document and Records Control.





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Table 3: Record of Annual Review/36-Month Risk Assessment

The Drinking Water Quality Management Standard (DWQMS) requires that the currency of the information and the validity of the assumptions used in the risk assessment be verified at least once every calendar year. In addition, the risk assessment must be conducted at least once every thirty-six months.

Date of Activity	Type of Activity	Participants	Summary of Results
May 1, 2008	Initial Risk Assessment Conducted	Dwayne Grondin, Antonietta Giofu	Initial Risk Assessment Conducted
April 20, 2012	Annual Review	Dwayne Grondin, Antonietta Giofu	Reviewed Risk Assessments and no changes required at this time
February 19, 2014	Annual Review	Dwayne Grondin, Antonietta Giofu	Reviewed Risk Assessments and no changes required at this time
October 30, 2015	36 Month Risk Assessment	Dwayne Grondin, Antonietta Giofu	Reviewed Risk Assessments with minor updates
September 19, 2016	Annual Review	Dwayne Grondin, Antonietta Giofu	Reviewed Risk Assessments and no changes required at this time
February 15, 2017	Annual Review	Dwayne Grondin, Antonietta Giofu	Reviewed Risk Assessments and no changes required at this time
December 11, 2018	36 Month Risk Assessment	Dan Beaulieu, Antonietta Giofu	36 month Risk Assessment Review completed in 2.0 change over
March 27, 2019	Annual Review	Dan Beaulieu, Antonietta Giofu	Reviewed Risk Assessments and added Critical Shortage of Staff
May 21, 2021	36 Month Risk Assessment	Dan Beaulieu, Antonietta Giofu, Dan Rawlins, Justin Rousseau	36 month Risk Assessment Review completed with Management Review
March 31, 2022	Annual Review	Dwayne Grondin, Kevin Jones, Shawn MacDonald, Dan Ouellette, Rob Oates, Ryan Sivers, Doug McLeod, Ken Lauzon, Kaine Sivers	Reviewed Risk Assessments with staff, added Pandemic and Private Residence Cross-Contamination
October 16, 2023	Annual Review	Dwayne Grondin, Antonietta Giofu	Reviewed Risk Assessments and no changes required at this time

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November 21, 2024	36 Month Risk Assessment	Dwayne Grondin, Shawn MacDonald, Dan Ouellette, Rob Oates, Ryan Siversns, Doug Matlack, Ken Lauzon, Justin Drouillard	Reviewed Risk Assessments with staff, added 20" Watermain Break and Cybersecurity
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Table 4: Potential Hazardous Event/Hazard Reference Numbers (based on MECP’s “Potential Hazardous Events for Municipal Residential Drinking Water Systems” dated April 2022)

If the hazardous event/hazard is not applicable to this drinking water system (DWS), it will be noted in the first column of this table.

System Type (indicate all that apply to this DWS)		Reference Number	Description of Hazardous Event/Hazard
X	All Systems	1	Long Term Impacts of Climate Change
X	All Systems	2	Water supply shortfall
X	All Systems	3	Extreme weather events (e.g., tornado, ice storm)
X	All Systems	4	Sustained extreme temperatures (e.g., heat wave, deep freeze)
X	All Systems	5	Chemical spill impacting source water
X	All Systems	6	Terrorist and vandalism actions
X	Distribution Systems	7	Sustained pressure loss
X	Distribution Systems	8	Backflow
X	All Systems	9	Cybersecurity threats

Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Initial risk assessment conducted under 2.0
2019-05-14	1	Added Terrorism to Table 1 as per CAR from external audit
2020-03-20	2	Correct abbreviation for the Ministry from MOECP to MECP
2020-05-21	3	Addition to Table 1 as per CAR from external audit
2022-03-31	4	Added Pandemic and Private Residence Cross-Contamination
2024-11-21	5	Added 20" Watermain Break and Cybersecurity

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Reviewed by: QMS Representative	Approved by: Top Management	

1. Purpose

To document the following for the Amherstburg Water Distribution System:

- Owner;
- Organizational structure of the Operating Authority;
- QMS roles, responsibilities and authorities of staff, Top Management
- Responsibilities for conducting the Management Review

2. Definitions

Owner – refers to the Corporation of the Town of Amherstburg (Mayor and Council), representatives of the Town (CAO, Town Clerk)

Top Management – Director of Engineering and Public Works, Manager of Environmental Services, Supervisor of Environmental Services and any person, persons or a group of people at the highest management level within an operating authority that makes decisions respecting the QMS and recommendations to the owner respecting the subject system or subject systems

Operations Personnel – Employees of the drinking water system who perform various activities related to the compliance, operations and maintenance of the drinking water system that may directly affect drinking water quality.

3. Procedure

3.1 Organizational Structure

The Amherstburg Water Distribution System is owned by the Corporation of the Town of Amherstburg and is represented by Owner representative(s) e.g., Council, Mayor, CAO, etc.



The organizational structure of the Town of Amherstburg, Amherstburg Public Works, is outlined in appendix OP-09A: Organizational Structure.

3.2 Top Management

Top Management for the Amherstburg Water Distribution System consists of:

- Director of Engineering and Public Works
- Manager of Environmental Services
- Supervisor of Environmental Services

Irrespective of other duties (see Table 9-2 below), Top Management's responsibilities and authorities include:

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- Endorsing the Operational Plan as per the Commitment and Endorsement procedure (OP-03);
- Ensuring that the QMS meets the requirements of the DWQMS;
- Ensuring staff are aware of the applicable legislative and regulatory requirements;
- Communicating the QMS according to the Communications procedure (OP-12);
- Providing resources needed to maintain and continually improve the QMS;
- Appointing and authorizing a QMS Representative (OP-04); and
- Undertaking Management Reviews as per the Management Review procedure (OP-20).


Note: Specific responsibilities of the individual members of Top Management are identified in the referenced procedures.

3.3 Oversight


Roles, responsibilities and authorities for individuals/groups providing oversight of the Town of Amherstburg's QMS are summarized in Table 9-1 below.

Table 9-1: QMS Roles, Responsibilities and Authorities



Role	Responsibilities and Authorities
Owner (Mayor, Council, CAO, Town Clerk)	Responsible for: <ul style="list-style-type: none"> • Ensuring the provision of safe and reliable municipal drinking water supply to the serviced areas of the Town of Amherstburg and the supplied serviced areas of the Town of Essex • Set the Town's strategic direction, monitor overall performance and ensure appropriate systems and controls are in place in accordance with the Town's governing documents • Establish the Town's organizational structure and governing documents and ensure resources are in place to support strategic initiatives • Review and approve the QMS Policy • Approving Budgets • Ultimate approval authority for the entire distribution system and the QMS Authorized to: <ul style="list-style-type: none"> • Review, revise and approve proposed and existing by-laws, expenditures, user fees and taxation rates • Provide, review and approve administration policies and procedures
Top Management (Director of Engineering and Public Works, Manager of Environmental Services, Supervisor	Responsible for: <ul style="list-style-type: none"> • Ensuring safe, reliable and compliant operation of all systems under the responsibility of the Amherstburg Public Works Department • Monitor and report on the Town's operational and business performance to the Owner • Review the QMS Policy and recommend its approval to the Owner

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-09 Rev Date: 2023-10-12 Rev No: 2 Pages: 3 of 5
ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES		
Reviewed by: QMS Representative	Approved by: Top Management	

of Environmental Services)	<ul style="list-style-type: none"> • Approving Policies and Procedures • Water Permits, Inspections, Planning • Public Works (roads, water/wastewater, parks) • Duties associated with the designated QMS representative defined in the standard • Act as ORO for the distribution system • Administer programs such as Water Conservation • Assist in administration of engineering studies and systems planning and asset management • Establish, test and update site-specific emergency plan • Overall responsibility for water customer billing, meter reading & customer inquiries • Meter replacements and repairs • Infrastructure maintenance • Watermain, valves, curb stops and fire hydrant maintenance and repairs • Sanitary sewer maintenance, flushing, private service connections to property line • New watermain construction site coordination, liaison with contractors and PWD inspectors • Administrative and record keeping • Water and Wastewater budget and expenditure responsibility • Response to adverse water occurrences • Provide direct supervision of Operations Personnel • Undertake and attend the Management Review of the QMS • Manage the QMS Policy and corporate QMS programs and procedures • Provide support for the local implementation of the QMS • Monitor and report on QMS performance and any need for improvement to the Owner • Consult with the MECP and other regulators and provide compliance support/guidance on applicable legislative, regulatory and policy requirements <p>Authorized to:</p> <ul style="list-style-type: none"> • Approve QMS programs and procedures • Manage and delegate management utility assets • Review, revise and approve proposed and existing by-laws, expenditures, user fees and taxation rates • Provide, review and approve administration policies and procedures • Hire, discipline or terminate Town staff or contracted service providers • Manage contract with the Town's DWQMS accreditation body • Manage contract with OCWA with regard to the Treatment Plants • Manage the day-to-day operations and maintenance of his/her assigned facilities and supervise facility operational staff • Fulfill role of Top Management • Ensure corporate and site-specific QMS programs and procedures are implemented at his/her assigned facilities
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ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES		
Reviewed by: QMS Representative	Approved by: Top Management	

	<ul style="list-style-type: none"> • Determine necessary action and assign resources in response to operational issues • Report to the Owner on operational performance • Ensure operational training is provided for the Operations Personnel • Perform yearly review of Risk Assessment Outcomes
Operations Personnel (Water clerk, Water/Wastewater Operators)	<p>Responsible for:</p> <ul style="list-style-type: none"> • Perform duties in compliance with applicable legislative and regulatory requirements • Be familiar with the QMS Policy and work in accordance with QMS programs and procedures • Maintain operator certification (as required) • Attend/participate in training relevant to their duties under the QMS • Document all operational activities • Identify potential hazards at their facility that could affect the environmental and/or public health and report to Top Management • Report and act on all operational incidents • Recommend changes to improve the QMS • Perform duties as assigned by Top Management or designate <p>Authorized to:</p> <ul style="list-style-type: none"> • Perform locates, meter reading, installs, repairs, flushing, inspect watermains, water valves, hydrants, valve boxes, curb boxes, sample stations and watermain related appurtenances • Install, locate and repair water services • Operate valves • Perform general labour work including but not limited to digging, lifting, carrying, twisting • Utilize various hand and power tools, equipment and machinery as necessary to complete tasks assigned • Operate vehicles, backhoes, dump trucks and other heavy equipment • Complete reports regarding tasks assigned • Act as ORO for the distribution system in the absence of both the Manager of Environmental Services and the Supervisor of Environmental Services (only operators with Level II certification or greater) • Monitor, maintain and operate facilities in accordance with applicable regulations, approvals and established operating procedures • Collect samples and equipment calibrations as required • Regularly inspect operating equipment, perform routine preventive maintenance and repairs and prepare and complete work orders as assigned • Participate in facility inspections and audits • Participate in 36 month Risk Assessment Review



	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-09 Rev Date: 2023-10-12 Rev No: 2 Pages: 5 of 5
ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES		
Reviewed by: QMS Representative		Approved by: Top Management

4. Related Documents

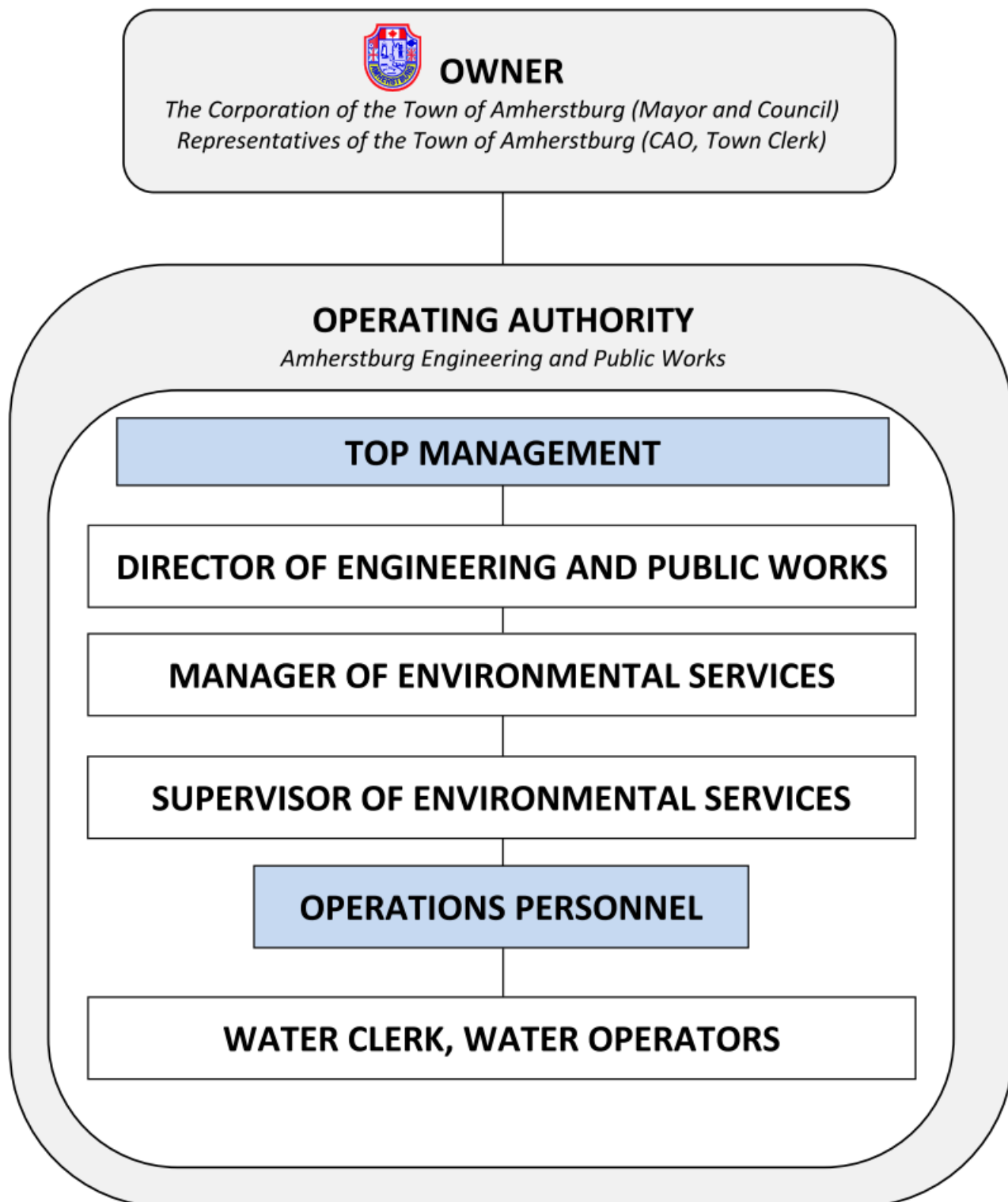
OP-03	Commitment and Endorsement
OP-04	QMS Representative
OP-05	Document and Records Control
OP-09A	Organizational Structure
OP-12	Communications
OP-20	Management Review


5. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued – Information within OP-09 was originally set out in the main body of the Town of Amherstburg's Operational Plan (last revision #7 dated February 15, 2017).
2020-03-21	1	Correct abbreviation for the Ministry from MOECP to MECP
2023-10-12	2	Added responsibilities regarding Risk Assessment Reviews

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-09A Rev Date: 2019-01-18 Rev No: 0 Pages: 1 of 2
ORGANIZATIONAL STRUCTURE		
Reviewed by: QMS Representative	Approved by: Top Management	



Organizational Chart



	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-09A Rev Date: 2019-01-18 Rev No: 0 Pages: 2 of 2
ORGANIZATIONAL STRUCTURE		
Reviewed by: QMS Representative		Approved by: Top Management

Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued and revised to 2.0 from previous Operational Plan

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-10 Rev Date: 2023-10-12 Rev No: 1 Pages: 1 of 4
COMPETENCIES		
Reviewed by: QMS Representative		Approved by: Top Management

1. Purpose

To document a procedure that describes:

- the competencies required for personnel performing duties directly affecting drinking water quality;
- the activities to develop and/or maintain those competencies; and
- the activities to ensure personnel are aware of the relevance of their duties and how they affect safe drinking water.

2. Definitions

Competence – the combination of observable and measurable knowledge, skills, and abilities which are required for a person to carry out assigned responsibilities



Top Management – a person, persons or a group of people at the highest management level within an operating authority that makes decisions respecting the QMS and recommendations to the Owner respecting the subject system or subject systems

Operations Personnel – employees of the drinking water system who perform various activities related to the compliance, operations and maintenance of the drinking water system that may directly affect drinking water quality

3. Procedure

3.1 The following table presents the minimum competencies required by Top Management.

Position	Required Minimum Competencies
Director of Engineering and Public Works	<ul style="list-style-type: none"> • Experience and/or training in managing/supervising operations, maintenance, financial planning and administration • Training and/or experience related to municipal processes, principles and technologies • Training on the Town's QMS and the DWQMS • Training on relevant legislation, regulations, codes, policies, guidelines and procedures • Experience using computers and operational computerized systems



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COMPETENCIES		
Reviewed by: QMS Representative		Approved by: Top Management

Position	Required Minimum Competencies
Manager of Environmental Services	<ul style="list-style-type: none"> Valid operator certification; minimum level of WDS2 is required to act as ORO Experience and/or training in managing/supervising drinking water system operations, maintenance, financial planning and administration Training and/or experience related to drinking water system processes, principles and technologies Training on the Town's QMS and the DWQMS Training on relevant legislation, regulations, codes, policies, guidelines and procedures Experience using computers and operational computerized systems
Supervisor of Environmental Services	<ul style="list-style-type: none"> Valid operator certification; minimum level of WDS2 is required to act as ORO Experience and/or training in managing/supervising drinking water system operations, maintenance, financial planning and administration Training and/or experience related to drinking water system processes, principles and technologies Training on the Town's QMS and the DWQMS Training on relevant legislation, regulations, codes, policies, guidelines and procedures Experience using computers and operational computerized systems

3.2 The following table presents the minimum competencies required by operations personnel.

Position	Required Minimum Competencies
Operators	<ul style="list-style-type: none"> Valid operator certification, minimum level of WDS1 is required Experience and/or training related to operation/installation of valves Training on the Town's QMS and the DWQMS Training on relevant legislation, regulations, codes, policies, guidelines and procedures Experience using computers
Operators / Water Clerk	<ul style="list-style-type: none"> Experience and/or training related to procurement and business administration practices Training on the Town's QMS and the DWQMS Training on relevant legislation, regulations, codes, policies, guidelines and procedures Experience using computers

3.3 The Town's recruiting and hiring practices require certain competencies, which include education, skills, knowledge and experience requirements. These are established when designing the job description for a particular position. As part of the recruitment

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COMPETENCIES		
Reviewed by: QMS Representative	Approved by: Top Management	

process, competencies are then evaluated against the job description. Based on this evaluation, the hiring manager selects and assigns personnel for specific duties.

3.4 The Town's aims to:

- Develop the skills and increase the knowledge of staff and management;
- Provide staff with information and access to resources that can assist them in performing their duties; and
- Assist Town certified operators in meeting the legislative and regulatory requirements with respect to training.

3.5 The training consists of Director Approved, continuing education and on-the-job training and is delivered using a combination of methods (e.g., traditional classroom courses, e-learning/webinars and custom/program-based courses/sessions).

3.6 Awareness of the Town's QMS is promoted during the orientation of new staff, at facility level training sessions and meetings.

3.7 Operations personnel also receive site-specific training/instruction on relevant operational and emergency response procedures to ensure effective operational control of processes and equipment which may impact the safety and quality of drinking water.



3.8 Certified drinking water operators are responsible for completing the required number of training hours in order to renew their certificates based on the highest class of drinking water subsystem they operate. They are also responsible for completing mandatory courses required by *Safe Drinking Water Act* (SDWA) O. Reg. 128/04 Certification of Drinking Water System Operators. Top Management takes reasonable steps to ensure that every operator has the opportunity to attend training to meet the requirements.

3.9 It is the responsibility of operations personnel to ensure Top Management are aware of any change to the status/classification of their drinking water operator certificate(s), the validity of their driver's licence (required to hold at a minimum a Class DZ license which is initially verified upon hire) and/or the validity of any other required certificates/qualifications.

3.10 Each Individual Town of Amherstburg employee has been provided a training binder, the individual shall maintain the binder and keep records of all training received. The Manager of Environmental Services shall review the binder prior to license renewal to ensure the required amount of Continuing Education Units (CEU's) and On-the-Job training hours have been achieved.



4. Related Documents

OP-11 Personnel Coverage

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-10 Rev Date: 2023-10-12 Rev No: 1 Pages: 4 of 4
COMPETENCIES		
Reviewed by: QMS Representative		Approved by: Top Management

5. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure re-issued – Information within OP-10 was originally set out in the main body of the Town of Amherstburg's Operational Plan (last revision #7 dated February 15, 2017).
2023-10-12	1	Section 3.10 has been revised to reflect the individual employees training summary responsibilities.

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-11 Rev Date: 2019-01-18 Rev No: 0 Pages: 1 of 2
PERSONNEL COVERAGE		
Reviewed by: QMS Representative	Approved by: Top Management	

1. Purpose

To describe the procedure for ensuring that sufficient and competent personnel are available for duties that directly affect drinking water quality at the Amherstburg Water Distribution System.

2. Definitions



Competency – an integrated set of requisite skills and knowledge that enables an individual to effectively perform the activities of a given occupation

Essential Services – services that are necessary to enable the employer to prevent,

- (a) danger to life, health or safety,
- (b) the destruction or serious deterioration of machinery, equipment or premises,
- (c) serious environmental damage, or
- (d) disruption of the administration of the courts or of legislative drafting.

3. Procedure

- 3.1 Top Management ensures that personnel meeting the competencies identified in OP-10 Competencies are available for duties that directly affect drinking water quality.
- 3.2 The Amherstburg Water Distribution System is staffed by Town of Amherstburg personnel as follows:
- 3.3 Top Management are assigned to act as and fulfill the duties of Overall Responsible Operator (ORO). Operations personnel act as backup (ORO) in the absence of both the Manager of Environmental Services and the Supervisor of Environmental Services and Operator-in-Charge (OIC) in accordance with SDWA O. Reg. 128/04.
- 3.4 The Top Management is on-call for the system.
- 3.5 The on-call employee conducts a call-out based on the situation. The employee called out then does a physical inspection of the area in question upon arrival. Details of the inspection are recorded in the Over Time Call Out Record.
- 3.6 The Amherstburg Public Works department is staffed by water personnel from Monday through Friday, 7:00 am to 3:00 pm. After hours calls are dispatched to a call-centre operator. They contact the Supervisor of Environmental Services by landline. The dispatcher passes on the details of the alarm to the Supervisor. If the nature of the alarm requires additional staff, the Supervisor will call Operations Personnel in to report based on the Over Time list.
- 3.7 The Manager of Environmental Services is responsible for approving vacation time for their staff in a manner which ensures sufficient personnel are available for the performance of normal operating duties.

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PERSONNEL COVERAGE		
Reviewed by: QMS Representative	Approved by: Top Management	


- 3.8 Town of Amherstburg's operations personnel are represented by the International Brotherhood of Electrical Workers (IBEW). In the event of a labour disruption, Top Management, together with the Union, identifies Operations Personnel to provide "essential services" required to operate the system so that the quality and delivery of drinking water is not compromised in any way.

4. Related Documents

OP-10 Competencies
Over Time Call Out Record

5. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-12 Rev Date: 2019-01-18 Rev No: 0 Pages: 1 of 3
COMMUNICATIONS		
Reviewed by: QMS Representative		Approved by: Top Management

1. Purpose

To describe the procedure for system wide internal and external QMS-related communications between Top Management and:

- Town of Amherstburg staff;
- the Owner;
- essential suppliers and service providers (as identified in OP-13); and
- the public.

2. Definitions

Owner – refers to the Corporation of the Town of Amherstburg (Mayor and Council), representatives of the Town (CAO, Town Clerk)

Top Management – a person, persons or a group of people at the highest management level within an operating authority that makes decisions respecting the QMS and recommendations to the Owner respecting the subject system or subject systems

Operations Personnel – employees of the drinking water system who perform various activities related to the compliance, operations and maintenance of the drinking water system that may directly affect drinking water quality

3. Procedure

3.1 Top Management (the QMS Representative) are responsible for identifying and coordinating any site-specific communications in relation to the status/ development of the facility's QMS.

3.2 Internal and external communication responsibilities and reporting requirements for emergency situations are set out under the Town of Amherstburg's Emergency Response Plan Refer to OP-18 Emergency Management for more information.

3.3 Communication with Town of Amherstburg staff:

3.3.1 Within the first year of hire, all water staff are required to complete their Level 1 certification. The objective of attaining the Level 1 certification is to ensure that staff are aware of applicable legislative and regulatory requirements, and of the Town of Amherstburg's QMS and to reinforce their roles and responsibilities under the Town of Amherstburg's QMS.

3.3.2 Top Management are responsible for ensuring Operations Personnel receive site-specific training on the Operational Plan, the organizational structure for the system including the roles and responsibilities and authorities (outlined in OP-09

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COMMUNICATIONS		
Reviewed by: QMS Representative	Approved by: Top Management	

Organizational Structure, Roles, Responsibilities and Authorities), QMS Procedures and other related operating instructions and procedures as part of the orientation process and on an on-going basis as required.

3.3.3 Top Management is responsible for ensuring training is provided for the owner on applicable legislative and regulatory requirements and the QMS.

3.3.4 Revisions to the QMS and associated documentation are communicated as per OP-05 Document and Records Control.

3.3.5 The QMS Policy is available to all Town of Amherstburg personnel through the Town of Amherstburg's common drive and the Town of Amherstburg's public website as outlined in 3.6.2 of this procedure.

3.3.6 Operations Personnel are responsible for identifying potential hazards within the system that could affect the environmental and/or public health, and communicating these to Top Management. They may also recommend changes be made to improve the system's QMS by making a request to the QMS Representative (as per OP-05).

3.3.7 The QMS Representative is responsible for ensuring that Top Management is informed regarding the compliance/quality status of the system and QMS implementation and any need for improved processes/procedures.

3.3.8 The Manager of Environmental Services reports to other Top Management on the compliance status, the QMS performance and effectiveness, any need for improvement and on issues that may have Town-wide significance and on facility operational performance.


3.4 Communication with the Owner:

3.4.1 Top Management ensures that the Owner is provided with QMS updates and that they are kept informed of the status of the system's operational and compliance performance during regularly scheduled meetings and/or through electronic and/or verbal communications.

3.4.2 The continuing suitability, adequacy and effectiveness of the Town of Amherstburg's QMS are communicated to the Owner and Top Management as part of the Management Review process (refer to OP-20 Management Review).

3.5 Communications with Essential Suppliers and Service Providers:

3.5.1 Communication requirements to ensure essential suppliers and service providers understand the relevant Town of Amherstburg QMS policies, procedures and expectations are described in OP-13 Essential Supplies and Services.

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COMMUNICATIONS		
Reviewed by: QMS Representative		Approved by: Top Management

3.6 Communication with the Public:



- 3.6.1 Media enquiries must be directed to the system's designated media spokesperson as identified in the Emergency Response Plan. The media spokesperson coordinates with local and corporate personnel (as appropriate) and the Owner in responding to media enquiries.
- 3.6.2 The Town of Amherstburg's QMS and QMS Policy are communicated to the public through the Town of Amherstburg's public website. The QMS Policy is also posted at Amherstburg Public Works.

4. Related Documents

QMS Meeting Records
Training Records
OP-05 Document and Records Control
OP-09 Organizational Structure, Roles, Responsibilities and Authorities
OP-13 Essential Supplies and Services
OP-18 Emergency Management
OP-20 Management Review
Emergency Response Plan

5. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-13 Rev Date: 2024-11-22 Rev No: 4 Pages: 1 of 2
ESSENTIAL SUPPLIERS AND SERVICES		
Reviewed by: QMS Representative	Approved by: Top Management	

1. Purpose

To describe the Town of Amherstburg's procedures for procurement and for ensuring the quality of essential suppliers and services.

2. Definitions

Essential Suppliers and Services – suppliers and services deemed to be critical to the delivery of safe drinking water



3. Procedure

- 3.1 Essential suppliers and services for the Amherstburg Water Distribution System are contained in the Essential Suppliers and Services List. The list is reviewed and updated at least once every calendar year by the QMS Representative.
- 3.2 Purchasing is conducted in accordance with the Town of Amherstburg's Procurement and Administration policies, procedures and guidelines.
- 3.3 As part of the procurement process, potential suppliers/service providers are informed of relevant aspects of the Town of Amherstburg's QMS through the tendering process and through specific terms and conditions set out in our agreements.
- 3.4 Contractors are selected based on their qualifications and ability to meet the system's needs without compromising operational performance and compliance with applicable legislation and regulations.

Town of Amherstburg's Water Material Specifications must be followed by the supplier/contractor for any components used in the distribution system.
A Town representative will review materials delivered to a construction site prior to use to ensure they meet the Town's specifications.

Licensed water operators will conduct site inspections while the contractor is working around critical infrastructure. Operators shall oversee pressure tests for new construction and conduct compliance sampling prior to new components being placed into service within the distribution system.

- 3.5 All third-party drinking water testing services are provided by accredited and licensed laboratories. The Ministry of the Environment, Conservation and Parks (MECP) has agreement with The Canadian Association for Laboratory Accreditation (CALA) for accreditation of laboratories testing drinking water. The QMS Representative is responsible for notifying the MECP of any change to the drinking water testing services being utilized.
- 3.6 Internal verification and calibration activities (e.g. chlorine analyzer, etc.) are conducted by operations personnel in accordance with equipment manuals and/or procedures (Refer to OP-17 Measurement Recording Equipment Calibration and Maintenance).

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ESSENTIAL SUPPLIERS AND SERVICES		
Reviewed by: QMS Representative	Approved by: Top Management	

- 3.7 External calibration activities (e.g. flow meters) are conducted by qualified third-party providers. Qualifications of the service provider are verified during the procurement process. The service provider is responsible for providing a record/certificate of all calibrations conducted.
- 3.8 Chemicals purchased for use in the drinking water distribution system must meet AWWA Standards and be ANSI/NSF certified as per the Municipal Drinking Water Licence (MDWL).
- 3.9 Process components/equipment provided by the supplier must meet applicable regulatory requirements and industry standards for use in drinking water systems prior to their installation.

4. Related Documents

Essential Supplies and Services List
OP-17 Measurement Recording Equipment Calibration and Maintenance
ANSI/NSF Documentation
AWWA Standards
MDWL
Calibration Certificates/Records
Amherstburg's Water Material Specifications

5. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued
2020-03-21	1	Correct abbreviation for the Ministry from MOECP to MECP
2023-03-16	2	Added reference to the Town's material specifications in Section 3.4
2023-10-17	3	Revised "Supplies" to Suppliers throughout document
2024-11-22	4	Revised Section 3.4



 QMS Amherstburg Public Works	 QMS PROCEDURE Amherstburg Water Distribution System	Proc.: AMBP-005 Rev Date: 22-Nov-24 Rev.#: 12 Pages: 1 of 2
Reviewed by: QMS Representative	Approved by: Top Management	

Table 1: List of Essential Supplies and Services for the Amherstburg Water Distribution System

SUPPLIES/SERVICES	SUPPLIER/SERVICE PROVIDER CONTACT INFO	
	PRIMARY	OTHERS POSSIBLE SUPPLIERS
Ministry of the Environment, Conservation and Parks (MOECP)	Paul TerSteege Water Compliance Officer Sarnia/Windsor 519-490-0763	David Racz Water Compliance Officer Sarnia/Windsor 519-980-2546
Ministry of Health (WECHU)	Victoria Peczulis – Manager 519-258-2146 ext 2101	Elaine Bennett - Manager 519-258-2146 ext 3156
Food Grade Grease	Certified Labs 245 Orenda Road Brampton, Ontario L6T 1E6 1-800-424-9300	Underground Specialties 5340 Walker Rd. Oldcastle, ON N0R 1L0 519-737-1263
Free CI Residual Packets	Hach Canada 3020 Gore Road London, Ontario N5V 4T7 1-800-665-7635	N/A
Water Testing of Sample Stations	OCWA 415 Front Road North Amherstburg, Ontario N9V 2V5 519-736-5447	N/A
Laboratory Services for Water Samples	Caduceon Environmental Laboratories 5-3201 Marentette Windsor, Ontario N8X 4G3 519-966-9541	N/A
Calibration and Instrumentation parts for Meters	AMS (Advanced Meter Service) 103 King St E Ingersoll, Ontario N5C 1G3 548-388-4696	N/A
Calibration and Instrumentation parts for Analyzers	Hetek Solutions Limited 2085 Piper Lane London, Ontario N5V 3S5 519-659-1144	N/A
Plumbing Repairs	Atkinson Plumbing 5448 Con 5 N R.R.#45 Amherstburg, ON N9V 2Y9 519-736-3293	CJ Bondy Plumbing 60 Sandwich St. S Amherstburg, ON N9V 1Z4 519-736-2138

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Plumbing Repairs	Plumbing Now - Mark 4255 Unit D1 Seventh Conc Windsor, ON N9A 6J3 519-972-9876	Jeff McGee 880 Front Road North Amherstburg, ON N9V2V7 519-990-6808
Plumbing Repairs	Active Plumbing - Scott 519-796-3675	
Backflow Prevention Program	Preview Inspection Services 1485 Front Rd S Amherstburg, ON N9V 2M7 519-551-8825	
Directional Boring	Rapid Drainage 13401 Desro Windsor, ON N8N 2L9 519-979-6551	Phoenix Drainage (2019) Ltd 2180 Astor Cr Oldcastle, ON N0R 1L0 519-737-2140
Electrical Contractor for Filling Stations	Hick's Electric 4411 County Rd. 18 Amherstburg, ON N9V 2Y7 519-736-1308	N/A
Trucking	Melvin Orr Trucking 1894 Manning Rd Windsor, ON N8N 2L9 519-735-7777	McGuire Farms 6840 Rd. 18 Amherstburg, ON N9V 2Y7 519-796-6699
Operation of Water Plant / Water Tower, Sampling of Distribution System	Ontario Clean Water Agency 415 Front Rd N Amherstburg, ON N9V 2V5 519-736-5447	N/A
Hydro Excavation	Heaton Sanitation 6390 6 th Conc N Amherstburg, ON N9V 2Y9 519-726-6388	Rapid Drainage 13401 Desro Windsor, ON N8N 2L9 519-979-6551
Telecommunications / Cell Phones / Radios	Kelcom 2591 Howard Ave Windsor, ON N8X 3W4 519-250-9100	N/A
Water Meters/ Readers	Metercor 10801 – 27 St. SE Calgary, AB T2Z 3V9 226-237-8724	Underground Specialties 5340 Walker Rd. Oldcastle, ON N0R 1L0 519-737-1263
Water System Materials & Components	Underground Specialties 5340 Walker Rd. Oldcastle, ON N0R 1L0 519-737-1263	Emco Corp 2663 Temple Dr Windsor, ON N8W 5J5 519-948-8131



Amherstburg Engineering and Public Works Department Emergency Contact List

Town of Amherstburg Contacts		
Antonietta Giofu , Director of Engineering and Public Works	cell home	519-818-6447 519-739-9634
Dwayne Grondin , Manager of Environmental Services	cell	519-818-8945
John Demitroff , Supervisor of Environmental Services	cell	519-890-3714
Eric Chamberlain , Manager of Roads	cell	519-990-1422
Pat Iacobelli , Supervisor of Roads	cell	519-818-1824
Michael Prue , Mayor	cell	519-992-5075
Valerie Critchley , CAO	cell	519-787-4520
Michael Mio , Fire Chief	cell	226-759-9192
OCWA Contacts		
Dan Rawlins , Senior Operations Manager	office cell	519-736-5750 519-796-6727
Liiban Mohamud , Process & Compliance Technician	cell	519-613-5542
General Switchboard		1-800-667-6292
Regulatory/Emergency Services Contacts		
Spills Action Centre (Ministry of the Environment)		1-800-268-6060
Ministry of the Environment District Office – Windsor		519-948-1464 After Hours: 519-973-4510 1-800-387-8826
Ministry of Labour (After hours call SAC)		1-800-531-5551
Medical Officer of Health (Health Unit): Dr. Mehdi Aloosh		519-258-2146 ext. 1476
Environmental health Director (Health Unit): Kristy McBeth		519-258-2146 ext. 3402
Environmental Health Department Manager: Victoria Peczulis		519-258-2146 ext. 2101
Fire		911 or 519-736-6500
Police		911
Ambulance		911 or 519-736-5411
Coast Guard		1-866-290-3731

Marine Pollution & Emergencies	1-800-265-0237
Search & Rescue (Trenton)	1-800-267-7270
Ministry of Natural Resources District Office (Chatham)	519-354-7340
Conservation Authority (ERCA)	519-776-5209
Emergency Measures Ontario	416-314-3723 (Call OPP after hours.)
Ontario Provincial Police (OPP)	1-888-310-1122
Ministry of Transportation (Regional or District Office)	1-800-265-6072
Environment Canada - Ontario	Environmental Emergencies 416-346-1971
Supplier Contacts	
Essex Power Normal Hours	519-737-6640
Essex Power After Hours	519-561-6366
Hydro One Normal Hours	1-888-664-9376
Hydro One After Hours	1-800-434-1235
Bell Canada	310-2355 or 611
Bell Canada Repair Services	1-800-661-2190
Bell Access Network Coordinator David Cowing	519-973-6702 519-560-0254 cell
Union Gas	1-877-969-0999
ONE CALL LOCATES	1-800-400-2255
Hicks Electric - Don	519-736-1308
Hurricane Hydrovac	519-726-6388
Rapid Drainage	Ted - 519-796-0551 Ralph - 519-965-0737 Dan - 519-796-1921
Danruss Contracting Inc. - Dan	519-796-1770
South Shore Contracting – Jeff	519-996-1173
Shepley Excavating Ltd. - Jeff	519-796-2730
Rudak Excavating Inc. – Brian	519-791-5266
Phoenix Drainage – Russ	519-791-5794

Revision History (List is reviewed and updated (if required) at least annually)			
<i>Date of Review:</i>	<i>Reviewed by:</i>	<i>Date of Review:</i>	<i>Reviewed by:</i>
Sept. 14, 2010	A.Giofu		
May 30, 2011	A.Giofu		
October 7, 2011	A. Giofu		
January 25, 2013	A. Giofu		
December 19, 2013	A. Giofu		
February 19, 2014	D. Grondin		
October 27, 2015	D. Grondin		
September 19, 2016	D. Grondin		
September 10, 2018	D. Beaulieu		
October 25, 2018	D. Beaulieu		
January 23, 2019	D. Beaulieu		
May 15, 2020	D. Beaulieu		
June 10, 2022	D. Grondin		
October 12, 2023	D. Grondin		
November 22, 2024	D. Grondin		



The Town of Amherstburg

ONTARIO

WATER MATERIAL SPECIFICATIONS

* All approved materials shall conform to NSF/ANSI 61 and 372 where applicable

Updated March 16, 2023

Item	Size Range (mm)	Specification * see NSF/ ANSI note above	CSA Standard	ASTM Standard	Description	Approved Manufacturer / Model
Polyvinyl Chloride (PVC) Watermain Pipe	100 to 300	AWWA C900	B137.3		Class 150, DR 18, CIOD, Blue colour	IPEX/Blue Brute, IPEX/Bionax, Royal Seal
	350 to 600	AWWA C905	B137.3		Class 165, DR 25, CIOD, Blue colour	IPEX/Centurion, Royal Seal
	100 to 450	AWWA C909	B137.3	D1784	Class 12545B	IPEX/Bionax
PVC Pipe (Directional Drilling)	100 to 300	AWWA C900	B137.3		DR 14, DR 18	IPEX/Fusible, IPEX/Terrabrute,
	>300	C900, C905	B137.3		DR 18	IPEX/Fusible
HDPE	>100	Consult with the Town				
PVC Fittings	100 to 300	AWWA C907	B137.2		Class 150, DR 18, CIOD, "PUSH-ON" only	IPEX/Blue Brute, Royal Seal, RCT Flex-Tite
	350 to 600				Class 165, DR 25, CIOD, "PUSH-ON" only	IPEX/Blue Brute, Royal Seal, RCT Flex-Tite
Ductile Iron Fittings	>200	AWWA C104, C111, C153			Class 350 cement mortar lined	Clow, Sigma, Star, Bibby
Transition Couplings	100 to 600	AWWA C219, C213, C550			Ductile Iron Type 304 SS hardware, Epoxy coated, NSF approved	Smith-Blair All 400 series Omni 441 series Robar/1406
Flanged Couplings	100 to 600	AWWA C219, C213, C550			Ductile Iron Type 304 SS hardware, Epoxy coated, NSF approved	Smith-Blair/Omni 912/913 series Robar/7400 series Ford/Flex FFCA Clow 90C series
Reducing Couplings	100 tp 600	AWWA C219, C213, C550			Ductile Iron Type 304 SS bolts, nuts & washers	Smith-Blair/415 Robar 1506R & 1508R Ford Flex FRC
Restrainers	All					Ford, Clow, Sigma, Star
Service Pipe	19 (3/4"), 25 (1")	AWWA C800		B88-49	Copper, Type "K"	Great Lakes Copper
	25 (1")	AWWA/CSA approved	B137.1	2769	PE-RT pipe, blue in colour, NSF 61 & NSF 14 approved	Aquapure Print Stream
	25 (1")	AWWA C904	B137.1		Poly Class 160, blue in colour	Pex-B IpeX, Rehau
	25 (1")	AWWA C904	B137.1		Poly Class 160, blue in colour	Pex-A Municipex IpeX, Rehau
Curb Boxes		1.35m to 1.65m Deep			Brass Pentagon Plug, Arch Base, Bolt on curb box lid for tracer wire, 304 SS Rod & Pin	Mueller, Bibby
Valve Boxes				A48	Cast iron, drilled for tracer wire	Bibby, Star, Sigma












The Town of Amherstburg

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WATER MATERIAL SPECIFICATIONS

* All approved materials shall conform to NSF/ANSI 61 and 372 where applicable

Updated March 16, 2023

Item	Size Range (mm)	Specification * see NSF/ ANSI note above	CSA Standard	ASTM Standard	Description	Approved Manufacturer / Model	
Curb Stops	25-50	AWWA C800			Ball Type and Non Draining, Inlet/Outlet Compression Joints for CTS	Cambridge Brass, Mueller	
Main Stops	25-50	AWWA C800			Ball Type, Inlet male AWWA Taper Thread / Outlet Compression Joint for CTS	Cambridge Brass, Mueller	Mueller Co.
Compression Coupling	19-50	AWWA C801			Inlet/Outlet Compression for CTS	Cambridge Brass, Mueller	
Tapping Sleeves & Service Saddles	100 to 600	AWWA C207			Class 150, All stainless steel with Type 304 stainless bolts.	Cambridge Brass, Smith-Blair, Ford fast series, Mueller	
Hydrants	All	AWWA C502		B584	One Storz pumper connection w/ Ontario Standard threads, Two standard hose connections, 30mm square operating unit, plugged drain holes, shop painted w/ two coats of yellow enamel, 150mm "PUSH-ON" BASE, right to close	Canada Valve (Century) & Clow (Brigadier M67)	
Hydrant Markers					Round markers	EH Wachs	
Valves	All	AWWA C550 AWWA C515				Mueller, Clow, EJ Flowmaster	
Zinc Caps	All				Interprovincial Corrosion Control	Brenn Technologies	
Anodes	5.4Kg (12lbs) 10.9Kg (24lbs)			B418	#10-7 Strand 5' Copper Wire with jacket	Interprovincial Corrosion Control, Brenn Technologies	
Tracer Wire				D-1248	#12 AWG high-strength copper clad steel insulated with a 30mil high density polyethylene insulation, blue in colour	Copperhead 1230 Blue-SF Open Cut only Copperhead 1245Blue-EHS Directional Drill	
Tracer Wire Connectors					Snakebite Locking Connectors 	Copperhead Snakebite LSC 1230	
Thermal Insulation for Trench				518	Used to thermally insulate mains and services expanded, extruded polystyrene board. MIN R10 and blue in colour MIN compressive strength of 690 KPA	DOW Chemical (StyroFoam HI 100) Brand, Owens Corning (Foamular 1000)	
Thermal Insulation for Pipe	Consult with the Town						
M.J. Fittings Gasket	100 to 600	AWWA C111				Sigma, Star	







The Town of Amherstburg



ONTARIO

WATER MATERIAL SPECIFICATIONS

* All approved materials shall conform to NSF/ANSI 61 and 372 where applicable

Updated March 16, 2023

Item	Size Range (mm)	Specification * see NSF/ ANSI note above	CSA Standard	ASTM Standard	Description	Approved Manufacturer / Model	
Double Check Valve Assembly Backflow Preventer	65-300	AWWA C510	B-64			Wilkins 350 Watts 774	   
Reduced Pressure Backflow Preventer	65-250	AWWA C510	B-64.4.1		Approved for new installation on domestic services	Wilkins 375 Watts 994	
Double Check Detector Assembly	80-250	AWWA C511			Shall be installed on Fire Protection Systems	Wilkesn 350DA DCDA Watts 709DCA	
Meter Wire					#18-#22 AWG 3 or 4 conductor non-braided wire		
Meter Cover	19-25				Double Lid Cover	Ford	
Meter Cover (plastic)	19-50					Ipex Ultra Rib	
Meter Setter					Copper Inlet angle ball valve, outlet angle ball valve	Ford	
Automatic and Continuous Flusher					Eclipse #9800	Kupferle	
Sample Station		NSF/ANSI 372			5' depth of bury	Cromer Industries/Test Tap	
Liquid Chlorine 12%		NSF/ANSI 60			Liquid Chlorine 12% (hypochlorite solution)		

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-14 Rev Date: 2024-11-22 Rev No: 2 Pages: 1 of 2
REVIEW AND PROVISION OF INFRASTRUCTURE		
Reviewed by: QMS Representative	Approved by: Top Management	

1. Purpose

To describe the Town of Amherstburg's procedure for reviewing the adequacy of infrastructure necessary to operate and maintain the Amherstburg Water Distribution System.

2. Definitions

Infrastructure –the set of interconnected structural elements that provide the framework for supporting the operation of the drinking water system, including buildings, workspace, process equipment, hardware, software and supporting services, such as transport or communication

3. Procedure

3.1 At least once every calendar year prior to budget submissions, Top Management conducts a review of the drinking water system's infrastructure to assess its adequacy for the operation and maintenance of the system. Operations Personnel assist with identifying the need for infrastructure repairs, replacements or alterations. Documents and records that are reviewed may include:



- Maintenance records
- Call-in reports
- Adverse Water Quality Incidents (AWQIs) or other incidents
- Health & Safety Inspections
- MOECP Inspection Reports

3.2 The outcomes of the risk assessment documented as per OP-08 are considered as part of this review.

3.3 The output of the review is a 5-year rolling Capital budget report to assist the Owner and the Amherstburg Public Works department with planning infrastructure needs for the short and long-term. This report is submitted, at least once every calendar year by Top Management, to the Owner for review and approval. Together with the Owner, Top Management determines and documents timelines and responsibilities for implementation of priority items.

3.4 The final approved Water & Wastewater Capital Budget (*Town of Amherstburg approved budget*) forms the long term forecast for any major infrastructure maintenance, rehabilitation and renewal activities as per OP-15.

3.5 Top Management ensures that results of this review are considered during the Management Review process (OP-20).



	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-14 Rev Date: 2024-11-22 Rev No: 2 Pages: 2 of 2
REVIEW AND PROVISION OF INFRASTRUCTURE		
Reviewed by: QMS Representative		Approved by: Top Management

4. Related Documents

OP-08 Risk Assessment Outcomes
OP-15 Infrastructure Maintenance, Rehabilitation and Renewal
OP-20 Management Review
Management Review Minutes

5. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued
2023-10-13	1	Capital Budget revised from 10 yr plan to 5 yr plan
2024-11-22	2	Removed Operational budget from section 3.3 & 3.4

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-15 Rev Date: 2024-11-22 Rev No: 1 Pages: 1 of 3
INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL		
Reviewed by: QMS Representative	Approved by: Top Management	

1. Purpose

To describe the Town Of Amherstburg's infrastructure maintenance, rehabilitation and renewal program for the Amherstburg Water Distribution System.

2. Definitions

Infrastructure –the set of interconnected structural elements that provide the framework for supporting the operation of the drinking water system, including buildings, workspace, process equipment, hardware, software and supporting services, such as transport or communication

Rehabilitation – the process of repairing or refurbishing an infrastructure element.

Renewal – the process of replacing the infrastructure elements with new elements.

3. Procedure

3.1 Amherstburg Public Works, manages maintenance, rehabilitation and renewal of infrastructure for which it is operationally responsible through work orders. Planned maintenance, unplanned maintenance, rehabilitation, renewal and program monitoring and reporting are all examples derived from work orders.



3.1.1 Planned Maintenance

Routine planned maintenance activities include: meter pit inspections, analyzer calibrations, flow meter calibrations, valve inspection, sample station inspections, hydrant inspections, hydrant flushing, hydrant maintenance, meter installations, etc.

Planned maintenance activities are scheduled which allows the user to:

- Enter detailed asset information;
- Generate and process work orders;
- Access maintenance and inspection procedures;
- Plan preventive maintenance and inspection work;
- Plan, schedule and document all asset related tasks and activities; and
- Access maintenance records and asset histories.

Planned maintenance activities are communicated to the person responsible for completing the task through the issuance of work orders. Work orders are generated on a daily schedule as determined based on manufacturer's recommendations, Manager's recommendation and site specific operational and maintenance needs and are assigned directly to the appropriate operations personnel. This schedule is set up by the Manager of Environmental Services. Work orders are completed and electronically entered into the common drive by

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-15 Rev Date: 2024-11-22 Rev No: 1 Pages: 2 of 3
INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL		
Reviewed by: QMS Representative	Approved by: Top Management	

the water clerk. Records of these activities are maintained as per OP-05 Document and Records Control.

The Manager maintains the inventory of equipment and ensures that appropriate maintenance plans are in place. Maintenance plans are developed according to the manufacturer's instructions, regulatory requirements, industry standards, and/or client service requirements. Equipment Operation and Maintenance (O&M) manuals are accessible to operations personnel at the locations specified in OP-05 Document and Records Control.

3.1.2 Unplanned Maintenance

Unplanned maintenance is conducted as required. All unplanned maintenance activities are authorized by Top Management. Unplanned maintenance activities are recorded on work orders and are entered into the common drive by the water clerk.

3.1.3 Rehabilitation and Renewal



Rehabilitation and renewal activities including capital upgrades (major infrastructure maintenance) are reviewed at least once every calendar year in consultation with Top Management and the Owner at the time of budget submission. A list of required replacement or desired new equipment is compiled and prioritized by Top Management in conjunction with Operations Personnel and is presented to the Owner for review and comment. All major expenditures require the approval of the Owner. In addition to the short-term system needs (i.e. current year), the Capital Report also provides a long-term rolling 5-year list of major maintenance recommendations. (Refer to OP-14 Review and Provision of Infrastructure).

3.1.4 Program Monitoring and Reporting

Maintenance needs for the system are determined through review of manufacturer's instructions, regulatory requirements, industry standards, and/or client service requirements and are communicated by means of work orders.

To assist in monitoring the effectiveness of the program, the Manager and Supervisor of Environmental Services review outstanding work orders and relay to operational staff to complete.

3.2 The Town Of Amherstburg's infrastructure maintenance, rehabilitation and renewal program is initially communicated to the Owner at a minimum of at least once every calendar year through submission of the Capital and Operations Report and through the results of the Management Review.



	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-15 Rev Date: 2024-11-22 Rev No: 1 Pages: 3 of 3
INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL		
Reviewed by: QMS Representative	Approved by: Top Management	

4. Related Documents

Minutes of Management Review
Capital and Operations Report
OP-05 Document and Records Control
OP-14 Review and Provision of Infrastructure

5. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure Issued – Information within OP-15 was originally set out in the main body of OCWA's Operational Plan (last revision #7 dated February 15, 2017).
2024-11-22	1	Revision to paragraph 3.1.3 to match current practices

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-16 Rev Date: 2023-10-13 Rev No: 2 Pages: 1 of 3
SAMPLING, TESTING AND MONITORING		
Reviewed by: QMS Representative		Approved by: Top Management

1. Purpose

To describe the procedure for sampling, testing and monitoring for process control and finished drinking water quality.

2. Definitions

Challenging Conditions – any existing characteristic of the water source or event-driven fluctuations that impact the operational process as identified and listed under OP-06 Drinking Water System

3. Procedure

3.1 All sampling, monitoring and testing is conducted at a minimum in accordance with SDWA O. Reg. 170/03 and the system's Municipal Drinking Water License (MDWL).

3.2 WATER DISTRIBUTION

3.2.1 The Ontario Clean Water Agency (OCWA) collects the regulatory Microbiological samples from the distribution system via defined Sample Stations. The sampling schedule is created and maintained by OCWA.

3.2.2 The Town will collect samples required for new watermain commissioning. Samples are collected, handled and submitted according to the directions provided by the licensed laboratory(ies) that conducts the analysis. The laboratory(ies) used for this facility are listed in the Essential Supplies and Services. Table 1 summarizes sampling requirements.

Electronic and/or hardcopy reports received from the laboratory are maintained as per OP-05 Document and Records Control. Analytical results from laboratory reports are uploaded into Town of Amherstburg's common drive.

3.2.3 Adverse water quality incidents are responded to and reported as per SOP AMBP-111 Adverse Water Quality Incident located within the SOP Manual.

3.2.4 Sampling, testing and monitoring results are readily accessible to the Owner at the facility office.

At a minimum, Owners are provided with an annual summary of sampling, testing and monitoring results through the SDWA O. Reg. 170/03 Section 11 Annual Report, the Schedule 22 Municipal Summary Report and through the Management Review process outlined in OP-20 Management Review.



	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-16 Rev Date: 2023-10-13 Rev No: 2 Pages: 2 of 3
SAMPLING, TESTING AND MONITORING		
Reviewed by: QMS Representative		Approved by: Top Management

Table 1 – Sampling Requirements



Parameter	Location	Frequency
Microbiological (total coliforms, e. coliform, HPC)	Samples are collected from rotating schedule from various points in the distribution system at sampling stations	Weekly as defined in O.Reg. 170/03 by OCWA
Microbiological (total coliforms, e. coliform, Background and Fecal)	Samples taken as regulated during the commissioning of new watermains	As required

Table 2 – In-House Sampling and Testing Schedule

Parameter	Location	Frequency
Blow-off Flushing and Maintenance	Varying points in the distribution system	Three Times Annually*
Fire Hydrant Flushing and Maintenance	Varying points in the distribution system	Annually*

*- As defined by the Operating Authority

- 3.2.5 The results of these in-house sampling and tests are recorded in appropriate check sheets
- 3.2.6 Additional sampling, testing and monitoring activities in the form of flushing and free chlorine testing occur in the following areas of the distribution system.
 - Furthest point sampling in Essex (bi-monthly)
- 3.2.7 Additional sampling maybe required in challenging conditions such as an adverse test result or a low chlorine residual reading. In such cases the MECP and the Windsor-Essex County Health Unit shall be notified in accordance to (O.Reg. 170/03), Section 16-6 (3). Additional sampling, testing and monitoring will be carried out as per the MECP and Health Unit's instructions.
- 3.2.8 Sampling, testing and monitoring results are readily accessible to the owner at the Amherstburg Public Works Department office.

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-16 Rev Date: 2023-10-13 Rev No: 2 Pages: 3 of 3
SAMPLING, TESTING AND MONITORING		
Reviewed by: QMS Representative		Approved by: Top Management

4 Related Documents

OP-05 Document and Records Control
OP-06 Drinking Water System
OP-20 Management Review
Laboratory Analysis Reports
Laboratory Chain of Custody Forms
Annual Report (O. Reg. 170 Section 11)
Municipal Summary Report (O. Reg. 170 Schedule 22)
Essential Supplies & Services List
SOP AMBP-111 Adverse Water Quality
Emergency Management Plan

5 Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued
2020-03-21	1	Correct abbreviation for the Ministry from MOECP to MECP
2023-10-13	2	Section 3.2.1 revised indicating samples collected by OCWA

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QEMS Proc.: OP-17 Rev Date: 2019-01-18 Rev No: 0 Pages: 1 of 2
MEASUREMENT AND RECORDING EQUIPMENT CALIBRATION AND MAINTENANCE		
Reviewed by: QMS Representative		Approved by: Top Management

1. Purpose

To describe the procedure for the calibration and/or verification and maintenance of measurement and recording equipment at the Amherstburg Water Distribution System.

2. Definitions

None

3. Procedure

- 3.1 All measurement and recording equipment calibration and maintenance (pocket colorimeter etc...) activities must be performed by appropriately trained and qualified personnel or by a qualified third-party calibration service provider (refer to OP-13 Essential Supplies and Services).
- 3.2 The Manager of Environmental Services establishes and maintains a list of measurement and recording devices and associated calibration schedules
- 3.3 Details regarding the results of the calibration and/or verification are recorded within each individual work order generated and by email of contracted certified technicians.
- 3.4 Calibration and maintenance activities are carried out in accordance with procedures specified in the manufacturer's manual, instructions specified in the work orders or the Standard Operating Procedures.
- 3.5 Standards, reagents and/or chemicals that may be utilized during calibration and/or verification and/or maintenance activities are verified before use to ensure they are not expired. Any expired standards, reagents and/or chemicals are appropriately disposed of and are replaced with new standards, reagents and/or chemicals as applicable. Additionally, a work order is issued on a monthly, quarterly, annual basis to ensure that standards, reagents and/or chemicals utilized during calibration and/or verification and/or maintenance within the system are verified.
- 3.6 Any measurement device which does not meet its specified performance requirements during calibration and/or verification must be removed from service (if practical) until repaired, replaced or successfully calibrated by a certified third party or the manufacturer. The failure must be reported to Top Management as soon as possible so that immediate measures can be taken to ensure that drinking water quality has not been compromised by the malfunctioning device. Any actions taken as a result of the failure are recorded in the work orders. Top Management ensures that any notifications required by applicable legislation are completed and documented within the specified time period.
- 3.7 Calibration and maintenance records and maintenance/equipment manuals are maintained as per OP-05 Document and Records Control.



	 OPERATIONAL PLAN Amherstburg Water Distribution System	QEMS Proc.: OP-17 Rev Date: 2019-01-18 Rev No: 0 Pages: 2 of 2
MEASUREMENT AND RECORDING EQUIPMENT CALIBRATION AND MAINTENANCE		
Reviewed by: QMS Representative	Approved by: Top Management	

4. Related Documents

Calibration/Maintenance Records
Maintenance/Equipment Manuals
OP-05 Document and Records Control
OP-13 Essential Supplies and Services
OP-15 Infrastructure Maintenance, Rehabilitation and Renewal

5. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QEMS Proc.: OP-18 Rev Date: 2020-03-15 Rev No: 1 Pages: 1 of 2
EMERGENCY MANAGEMENT		
Reviewed by: QMS Representative		Approved by: Top Management

1. Purpose

To describe the procedure for maintaining a state of emergency preparedness for the Amherstburg Water Distribution System.

2. Definitions

Emergency Response Plan – The emergency plan is required by the Emergency Management and Civil Protection Act and adopted as a by-law by council. It governs the provision and procedures of necessary services during an emergency and the manner in which employees of the municipality and other persons will respond to the emergency.

Emergency – a potential situation or service interruption that may result in the loss of the ability to maintain a supply of safe drinking water to consumers.

Emergency Response – the effort to mitigate the impact of an emergency on consumers

Top Management – a person, persons or a group of people at the highest management level within an operating authority that makes decisions respecting the QMS and recommendations to the Owner respecting the subject system or subject systems

3. Procedure



3.1 The QMS Representative maintains the Emergency Management Procedure.

3.2 Emergency situations and service interruptions are identified through the risk assessment process and documented in the Risk Assessment Table 1. Other sources of information for identifying potential emergencies may be determined by Management Reviews, MECP inspections, and emergencies identified in other systems.

3.3 An emergency contact list in conjunction with the essential supplies and services list is reviewed/updated at least once per calendar year.

3.3.1 Roles and responsibilities for Emergency Management are set out in the Roles, Responsibilities and Authorities table in Element 9.

3.3.2 An Essential Supplies and Services list (AMBP-005) and an Emergency Contact List are included in Section 13 of the Operational Plan. They outline contacts, supplies and services which could be required for response and recovery in an emergency situation. The list is available to all staff and updated at least annually or as pertinent information changes.

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QEMS Proc.: OP-18 Rev Date: 2020-03-15 Rev No: 1 Pages: 2 of 2
EMERGENCY MANAGEMENT		
Reviewed by: QMS Representative		Approved by: Top Management

3.3.3 Standard Operating Procedures are found in the Operational Plan in Section 23. Procedures that address emergency situations are as follows;

- AMBP-107 "Watermain Break Repairs"
- AMBP-108 "Water Valve Repair"
- AMBP-111 "Adverse Water Quality Incidents"
- AMBP-115 "Emergency Interconnection Valve Operation"

3.3.4 Relevant sections of the Emergency Response Plan may also contain additional information on emergency roles and responsibilities for those situations which could affect drinking water.



3.3.5 Testing of one of the SOP's noted section 3.3.3 will be conducted on an annual basis. A minimum of one of the SOP's shall be tested annually for effectiveness. The test may be conducted as a desktop exercise/ mock scenario or one of the SOP's may be reviewed utilizing an actual event in the system.

4. Related Documents

Emergency Response Plan
AMBP-107 "Watermain Break Repairs"
AMBP-108 "Water Valve Repair"
AMBP-111 "Adverse Water Quality Incidents"
AMBP-115 "Emergency Interconnection Valve Operation"
Emergency Contact List
Essential Supplies & Services List
OP-20 Management Review

5. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure Issued
2020-03-15	1	Correct abbreviation for the Ministry from MOECP to MECP, internal audit findings

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QEMS Proc.: OP-19 Rev Date: 2019-01-18 Rev No: 0 Pages: 1 of 4
INTERNAL QMS AUDITS		
Reviewed by: QMS Representative	Approved by: Top Management	

1. Purpose

To describe the procedure for conducting Internal Audits at the facility level that evaluate the conformance of Amherstburg's Quality Management System (QMS) to the requirements of the Drinking Water Quality Management Standard (DWQMS).

This procedure applies to Internal QMS Audits conducted at the Amherstburg Water Distribution System for the purpose of meeting the DWQMS requirements for internal audits.

2. Definitions

Audit Team – one or more Internal Auditors conducting an audit

Internal Auditor – an individual selected to conduct an Internal QMS Audit

Internal QMS Audit – a systematic and documented internal verification process that involves objectively obtaining and evaluating documents and processes to determine whether a quality management system conforms to the requirements of the DWQMS

Lead Auditor – Internal Auditor responsible for leading an Audit Team

Non-conformance – non-fulfillment of a DWQMS requirement

Objective Evidence – verifiable information, records or statements of facts. Audit evidence is typically based on interviews, examination of documents, observations of activities and conditions, reviewing results of measurements and tests or other means. Information gathered through interviews should be verified by acquiring supporting information from independent sources



Opportunity for Improvement (OFI) – an observation about the QMS that may, in the opinion of the Internal Auditor, offer an opportunity to improve the effectiveness of the system or prevent future problems; implementation of an OFI is optional

3. Procedure

3.1 Audit Objectives, Scope and Criteria

3.1.1 In general, the objectives of an internal QMS audit are:

- To evaluate conformance of the implemented QMS to the requirements of the DWQMS;
- To identify non-conformances with the documented QMS; and
- To assess the effectiveness of the QMS and assist in its continual improvement.

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QEMS Proc.: OP-19 Rev Date: 2019-01-18 Rev No: 0 Pages: 2 of 4
INTERNAL QMS AUDITS		
Reviewed by: QMS Representative		Approved by: Top Management

- 3.1.2 The scope of an internal QMS audit includes activities and processes related to the QMS as documented in the Operational Plan.
- 3.1.3 The criteria covered by an internal QMS audit include:
- Drinking Water Quality Management Standard (DWQMS)
 - Current Operational Plan
 - QMS-related documents and records
- 3.1.4 The audit scope and criteria may be customized as necessary to focus on a particular process/critical control point and/or any elements of the DWQMS which may warrant specific attention. The results of previous internal and external audits should also be considered.

3.2 Audit Frequency



- 3.2.1 Internal QMS audits may be scheduled and conducted once every calendar year or may be separated into smaller audit sessions scheduled at various intervals throughout the calendar year. However, all elements of the DWQMS must be audited at least once every calendar year.
- 3.2.2 The QMS Representative is responsible for maintaining the internal QMS audit schedule. The audit schedule may be modified based on previous audit results.

3.3 Internal Auditor Qualifications

- 3.3.1 Internal QMS audits shall only be conducted by persons approved by the QMS Representative and having the following minimum qualifications:
- Internal auditor training or experience in conducting management system audits; and
 - Familiarity with the DWQMS requirements.
- 3.3.2 Internal Auditors that do not meet the qualifications in s.3.3.1 may form part of the Audit Team for training purposes, but cannot act as Lead Auditor.
- 3.3.3 Internal Auditors must remain objective and, where practical, be independent of the areas/activities being audited.

3.4 Audit Preparation

- 3.4.1 Together, the QMS Representative and the Lead Auditor:
- Establish the audit objectives, scope and criteria;
 - Confirm the audit logistics (locations, dates, expected time and duration of audit activities, any health and safety considerations, availability of key personnel, audit team assignments, etc.).

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3.4.2 Each Internal Auditor is responsible for:

- Reviewing documentation to prepare for their audit assignments including:
 - the Operational Plan and related procedures;
 - results of previous internal and external QMS audits;
 - the status and effectiveness of corrective and preventive actions implemented;
 - the results of the management review;
 - the status/consideration of OFIs identified in previous audits; and
 - other relevant documentation.
- Preparing work documents (e.g., checklists, forms, etc.) for reference purposes and for recording objective evidence collected during the audit

3.5 Conducting the Audit

3.5.1 Opening and closing meetings are not required, but may be conducted at the discretion of the QMS Representative and the Lead Auditor taking into account expectations of Top Management.

3.5.2 The Audit Team gathers and records objective evidence by engaging in activities that may include conducting interviews with Top Management and staff (in person, over the phone and/or through e-mail), observing operational activities and reviewing documents and records.



3.5.3 The Audit Team generates the audit findings by evaluating the objective evidence against the audit criteria (s. 3.1.3). In addition to indicating conformance or non-conformance, the audit findings may also lead to the identification of opportunities for improvement (OFIs). The Lead Auditor is responsible for resolving any differences of opinion among Audit Team members with respect to the audit findings and conclusions.

3.6 Reporting the Results

3.6.1 The Lead Auditor reviews the audit findings and conclusions with the QMS Representative and Top Management. Other audit participants may also take part in this review as appropriate. This review may take place in person (e.g., during a closing meeting) or through other means (phone call, email, etc.). Any diverging opinions regarding the audit findings and conclusions should be discussed and, if possible, resolved. If not resolved, this should be noted by the Lead Auditor.

3.6.2 The Lead Auditor submits a written report and/or completed work documents to the QMS Representative. The submitted documentation must identify (at a minimum):

- Audit objectives, scope and criteria;
- Audit Team member(s) and audit participants;
- Date(s) and location(s) where audit activities were conducted;

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- Audit findings including:
 - Related objective evidence for each element;
 - Any non-conformance identified referencing the requirement that was not met; and
 - OFIs or other observations.
- Audit conclusions.

3.6.3 The QMS Representative distributes the audit results to Top Management and others as appropriate.

3.6.4 The QMS Representative ensures that results of internal QMS audits are included as inputs to the Management Review as per OP-20 Management Review.

3.7 Corrective Actions and Opportunities for Improvement (OFIs)

3.7.1 Corrective actions are initiated when non-conformances are identified through internal QMS audits and are documented and monitored as per OP-21 Continual Improvement.

3.7.2 OFIs are considered, and preventive actions initiated, documented and monitored as per OP-21 Continual Improvement.

3.8 Record-Keeping



3.8.1 Internal QMS audit records are filed by the QMS Representative and retained as per OP-05 Document and Records Control.

4. Related Documents

Internal Audit Records (checklists, forms, reports, etc.)
OP-05 Document and Records Control
OP-20 Management Review
OP-21 Continual Improvement

5. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued

	 OPERATIONAL PLAN Amherstburg Water Distribution System	QMS Proc.: OP-20 Rev Date: 2023-10-13 Rev No: 1 Pages: 1 of 2
MANAGEMENT REVIEW		
Reviewed by: QMS Representative	Approved by: Top Management	

1. Purpose

To describe the procedure for conducting a Management Review of the Management System (QMS) at the facility level.

2. Definitions

Management Review – a formal (documented) meeting conducted at least once every calendar year by Top Management to evaluate the continuing suitability, adequacy and effectiveness of Amherstburg Water Distribution’s Quality Management System (QMS)



Top Management – a person, persons or group of people at the highest management level within an operating authority that makes decisions respecting the QMS and recommendations to the owner respecting the subject system or subject systems.

Amherstburg has defined Top Management for the Amherstburg Water Distribution System as:

- Town of Amherstburg CAO
- Director of Public Works & Engineering
- Manager of Environmental Services
- Supervisor of Environmental Services

3. Procedure

- 3.1 Top Management ensures that a Management Review is conducted at least once every calendar year.
- 3.2 At a minimum, the QMS Representative, at least one member of Top Management must attend the Management Review meeting. Other members of Top Management may participate though their attendance is optional.
- 3.3 Other staff may be invited to attend the Management Review meeting or to assist with presenting information or in reviewing the information presented, where they offer additional expertise regarding the subject matter.
- 3.4 The standing agenda for Management Review meetings is as follows:
 - a) Incidents of regulatory non-compliance;
 - b) Incidents of adverse drinking water tests;
 - c) Deviations from critical control limits and response actions;
 - d) The effectiveness of the risk assessment process;
 - e) Internal and third-party audit results (including any preventive actions implemented to address Opportunities for Improvement (OFI) or rationale as to why OFIs were not implemented);
 - f) Results of emergency response testing (including any OFIs identified);

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- g) Operational performance;
- h) Raw water supply and drinking water quality trends;
- i) Follow-up on action items from previous Management Reviews;
- j) The status of management action items identified between reviews;
- k) Changes that could affect the QMS;
- l) Consumer feedback;
- m) The resources needed to maintain the QMS;
- n) The results of the infrastructure review;
- o) Operational Plan currency, content and updates;
- p) Staff suggestions; and
- q) Consideration of applicable Best Management Practices (BMPs).



- 3.5 In relation to standing agenda item q), applicable BMPs, if any, to address drinking water system risks discussed during other agenda items, are identified and documented in the Management Review minutes. Review and possible adoption of applicable BMPs are revisited during subsequent Management Reviews and are incorporated into preventive and/or corrective actions as per OP-21 as appropriate.
- 3.6 The QMS Representative coordinates the Management Review and distributes the agenda with identified responsibilities to participants in advance of the Management Review meeting along with any related reference materials.
- 3.7 The Management Review participants review the data presented and make recommendations and/or initiate action to address identified deficiencies as appropriate as per OP-21.
- 3.8 The QMS Representative ensures that minutes of and actions resulting from the Management Review meeting are prepared and distributed to the appropriate Top Management, personnel and all attendees in the Amherstburg Public Works Department and to the Mayor, Council and representatives of the Town of Amherstburg (CAO and Town Clerk).
- 3.9 The QMS Representative monitors the progress and documents the completion of actions resulting from the Management Review.

4. Related Documents

Management Review Reference Materials
Minutes and actions resulting from the Management Review
OP-21 Continual Improvement

5. Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued
2023-10-13	1	CAO added to Top Management

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Amherstburg Water Distribution System			
CONTINUAL IMPROVEMENT			
Reviewed by: QMS Representative		Approved by: Top Management	

1. Purpose

To describe the procedure for tracking and measuring continual improvement of the Quality Management System (QMS) for the *Amherstburg Water Distribution System*.

2. Definitions

Continual Improvement - recurring activity to enhance performance (ISO 14001:2014)

Corrective Action – action to eliminate the cause of detected nonconformity of the QMS with the requirements of the DWQMS or other undesirable situation

Non-conformance – the non-fulfilment of a DWQMS requirement

Preventive Action –action to prevent the occurrence of nonconformity of the QMS with the requirements of the DWQMS or other undesirable situation

3. Procedure

3.1 Amherstburg Public Works Department strives to continually improve the effectiveness of its QMS for this drinking water system(s) through the identification and implementation of corrective/preventive actions and, as appropriate, through review and consideration of applicable Best Management Practices (BMPs).



3.2 Corrective Actions

3.2.1 Non-conformances may be identified through an internal or external QMS audit(s) conducted for this drinking water system. They may also be identified as a result of other events such as:

- an incident/emergency;
- community/Owner complaint;
- other reviews; and
- operational checks, inspections or audits.

3.2.2 The QMS Representative (in consultation with Top Management) investigates the need for a corrective action to eliminate the root cause(s) so as to prevent the non-conformance from recurring. The investigation may also include input from the operators and other stakeholders and the consideration of BMPs as appropriate.

3.2.3 The QMS Representative determines the corrective action needed based on this consultation. Top Management (or designate) assigns responsibility and a target date for resolution.

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3.2.4 The QMS Representative ensures corrective actions are documented using Amherstburg WTP OFI NC Tracking. The QMS Representative monitors the progress of corrective action(s) and provides status updates to Top Management.

3.2.5 The implementation and effectiveness of corrective actions are verified during subsequent internal QMS audits and are considered during the Management Review. If there is evidence that the action taken was not effective, Top Management (or designate) initiates further corrective action and assigns resources as appropriate until the non-conformance is fully resolved.

3.3 Preventive Actions

3.3.1 Potential preventive actions may be identified through an internal or external QMS audit as Opportunities For Improvement (OFIs), during the Management Review or through other means such as:

- staff/Owner suggestions;
- regulator observations;
- evaluation of incidents/emergency response/tests;
- the analysis of facility/Amherstburg Public Works Department;
- non-conformances identified at other drinking water systems; or
- a result of considering a BMP.



3.3.1 The QMS Representative (in consultation with Top Management) considers whether a preventive action is necessary. The review may also include input from the operators and other stakeholders and the consideration of BMPs as appropriate.

3.3.2 If it is decided that a preventive action is necessary, the QMS Representative determines the action to be taken based on this consultation and Top Management (or designate) assigns responsibility and a target date for implementation.

3.3.3 The implementation and effectiveness of preventive actions are verified during subsequent internal QMS audits and are considered during the Management Review. If there is evidence that the action taken was not effective, Top Management (or designate) may consider further preventive actions and assigns resources as appropriate.

3.4 The QMS Rep. and Top Management monitor corrective/preventive actions on an ongoing basis and review the status and effectiveness of the actions during subsequent Management Review meetings.

3.5 Best Management Practices (BMPs)

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3.5.1 The QMS Representative and/or Top Management will review and consider applicable internal and/or external BMPs identified by internal and/or external sources as part of the Management Review (OP-20) and in the corrective and preventive action processes described above.

3.5.2 BMPs may include, but are not limited to:

- Amherstburg Public Works Department practices developed and adopted as a result of changes to legislative or regulatory requirements, trends from audit findings or drinking water system performance trends;
- Town-wide BMPs/guidance or recommended actions;
- Drinking water industry based standards/BMPs or recommendations; or
- Those published by the Ministry of the Environment, Conservation & Parks.

3.5.3 At a minimum, applicable BMPs must be reviewed and considered once every 36 months.

4 Related Documents

OP-05 Document and Records Control
 OP-20 Management Review
 Internal Audit Records

5 Revision History

Date	Revision #	Reason for Revision
2019-01-18	0	Procedure issued – Some of the information within OP-21 was originally set out in the main body of the Town of Amherstburg's Operational Plan (last revision #7 dated February 15, 2017).