

OPERATIONAL PLAN

For the West Elgin 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 OCWA's operating practices in mind and utilizing OCWA 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. OCWA 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 OCWA which are referred to in this Operational Plan (including, but not limited to, OCWA's QEMS documents, Standard Operating Procedures, policies and Facility Emergency Plans) remain the property of OCWA. 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*.



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West Elgin Distribution System

QEMS Doc: OP-ToC
Issue Date: 2018-08-07
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Reviewed by: QEMS Representative

Approved by: Operations Management

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QEMS Proc.: OP-01
Rev Date: 2018-08-07
Rev No: 1
Pages: 1 of 2

QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS)

Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

To document OCWA's Quality & Environmental Management System (QEMS). This Operational Plan defines and documents the QEMS for the West Elgin Distribution System operated by the Ontario Clean Water Agency (OCWA). It sets out the OCWA'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 & Environmental Management System (QEMS) – 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 West Elgin Distribution System is owned by the Corporation of the Municipality of West Elgin. OCWA is the contracted Operating Authority for the West Elgin Distribution System.

- 3.2 OCWA's Quality & Environmental Management System (QEMS) is structured and documented with the purpose of:
- 1. Establishing policy and objectives with respect to the effective management and operation of water/wastewater facilities;
 - 2. Understanding and controlling the risks associated with the facility's activities and processes;
 - 3. Achieving continual improvement of the QEMS 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 QEMS Procedures within this Operational Plan align with the 21 elements of the DWQMS.

4. Related Documents

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

5. Revision History

Date	Revision #	Reason for Revision
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West Elgin Distribution System

QEMS Proc.: OP-01
Rev Date: 2018-08-07
Rev No: 1
Pages: 2 of 2

QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS)

Reviewed by: QEMS Representative

Approved by: Operations Management

2018-05-11	0	Procedure issued – Information within OP-01 was originally set out in the Main body of OCWA’s Operational Plan (last revision 4 dated 2017-06-20). New Purpose, Definitions, Procedure, Related Documents and separate Revision History sections. Addition of new wording (s. 3.3) to clarify that the OCWA’s Operational Plan now aligns with the 21 elements of the DWQMS.
2018-08-07	1	Revised “Reviewed by” QMS Representative to QEMS Representative, changed MOECC to MECP as per IA July 20, 2018



Ontario Clean Water Agency

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QEMS Proc.: OP-02
Rev Date: 2018-08-07
Rev No: 1
Pages: 1 of 2

QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS) POLICY

Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

To document a QEMS Policy that provides the foundation for OCWA's Quality & Environmental 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 Ontario Clean Water Agency, its Board of Directors, Officers and entire staff are committed to the principles and objectives set out in our QEMS Policy.

OCWA's Policy is to:

- Deliver safe, reliable and cost-effective clean water services that protect public health and the environment.
- Comply with applicable legislation and regulations.
- Promote client, consumer and stakeholder confidence through service excellence, effective communications and reporting.
- Train staff on their QEMS responsibilities.
- Maintain and continually improve the QEMS.

Originally issued as Environmental Policy on June 8, 1995

Last revised, approved by OCWA's Board of Directors on April 6, 2016

(This policy is annually reviewed)

3.2 Our Board of Directors, Officers and entire staff will act to ensure the implementation of this Policy and will monitor progress of the Quality & Environmental Management System (QEMS).

3.3 OCWA's QEMS Policy is readily communicated and available to all OCWA personnel, the Owner and the public through OCWA's intranet and public websites. A hardcopy of the QEMS Policy is posted as specified in the OP-05 Document and Records Control procedure.

3.4 Essential suppliers and service providers are advised of OCWA's QEMS Policy as per the OP-13 Essential Supplies and Services procedure.



Ontario Clean Water Agency

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QEMS Proc.: OP-02
Rev Date: 2018-08-07
Rev No: 1
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QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS) POLICY

Reviewed by: QEMS Representative

Approved by: Operations Management

- 3.5 Corporate Compliance coordinates the annual review and approval of the QEMS Policy by the Board of Directors and communicates the approval to all OCWA employees via an electronic communication.
- 3.6 The current version of the policy indicates the date of the last revision and that the policy is annually reviewed. Electronic and hard-copy documents that include the QEMS Policy will only be required to be updated in years when the Policy has been revised. A complete review/revision history of the QEMS Policy (documenting the annual policy review and/or revision approval date) is maintained on OCWA's intranet.

4. Related Documents

- Current QEMS Policy (Posted on OCWA's intranet and internet)
- QEMS Policy Revision History (Posted on OCWA's intranet)
- OP-05 Document and Records Control
- OP-13 Essential Supplies and Services

5. Revision History

Date	Revision #	Reason for Revision
2018-05-11	0	Procedure issued – Information within OP-02 (s. 3) was originally set out in main body of OCWA's Operational Plan template (Revision 4 dated 2017-06-20). New sections: Purpose, Definitions, Procedure, Related Documents and a separate Revision History. Minor revisions to wording in s. 3.3 to reference location of posted copy of the policy. Added sections on how annual policy review is conducted (s. 3.5 and s. 3.6) and reference to OP-13 ESS (s. 3.4). The full revision history for the QEMS policy is available on OCWA's intranet..
2018-08-07	1	Revised "Reviewed by" QMS Representative to QEMS Representative as per IA July 20, 2018



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QEMS Proc.: OP-03
Rev Date: 2019-08-06
Rev No: 2
Pages: 1 of 2

COMMITMENT AND ENDORSEMENT

Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

To document the endorsement of the Operational Plan for the West Elgin Distribution System by OCWA Top Management and the Corporation of the Municipality of West Elgin (Owner) 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 OCWA Top Management and to the Owner 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 OCWA's Top Management is represented by Senior Operations Manager and Safety, Process and Compliance Manager.

3.2 Any major revision of the operational plan will be re-endorsed by OCWA Top Management and the Owner. Major revisions include:

1. A revision to OCWA's QEMS 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 significant 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

5. Revision History



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West Elgin Distribution System

QEMS Proc.: OP-03
Rev Date: 2019-08-06
Rev No: 2
Pages: 2 of 2

COMMITMENT AND ENDORSEMENT

Reviewed by: QEMS Representative

Approved by: Operations Management

Date	Revision #	Reason for Revision
2018-05-11	0	Procedure issued – Information within OP-03 was originally set out in the main body of OCWA's Operational Plan (revision 4 dated 2017-06-20). Procedure provides information on who from Top Management endorses the Operational Plan (s. 3.1); when owner re-endorsement is sought and 'criteria' as to what is considered a major revision to the Plan (s. 3.2). Element 3 of main body of OCWA's Operational Plan (Revision 8 on 2016-11-13) was incorporated into Appendix OP-03A which also includes the Owner and Top Management sign-off section
2018-08-07	1	Revised "Reviewed by" QMS Representative to QEMS Representative, revised 3.1 from RHM to SPC manager as per IA July 20, 2018
2019-08-06	2	Revised wording in 3.2 (3)



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QEMS Doc: OP-03A
Rev Date: 2020-07-10
Rev No: 1
Pages: 1 of 1

SIGNED COMMITMENT AND ENDORSEMENT

This Operational Plan sets out the framework for OCWA' Quality & Environmental Management System (QEMS) that is specific and relevant to your drinking water system(s) and supports the overall goal of OCWA and the Corporation of the Municipality of West Elgin (Owner) to provide safe, cost-effective drinking water through sustained cooperation. OCWA will be responsible for developing, implementing, maintaining and continually improving its QEMS with respect to the operation and maintenance of the West Elgin Distribution System and will do so in a manner that ensures compliance with applicable legislative and regulatory requirements.

Through the endorsement of this Operational Plan, the Owner commits to work with OCWA to facilitate this goal.

OCWA Top Management Endorsement

Owner Endorsement

Sam Smith
Senior Operations Manager

Date

Duncan McPhail
Mayor

Date

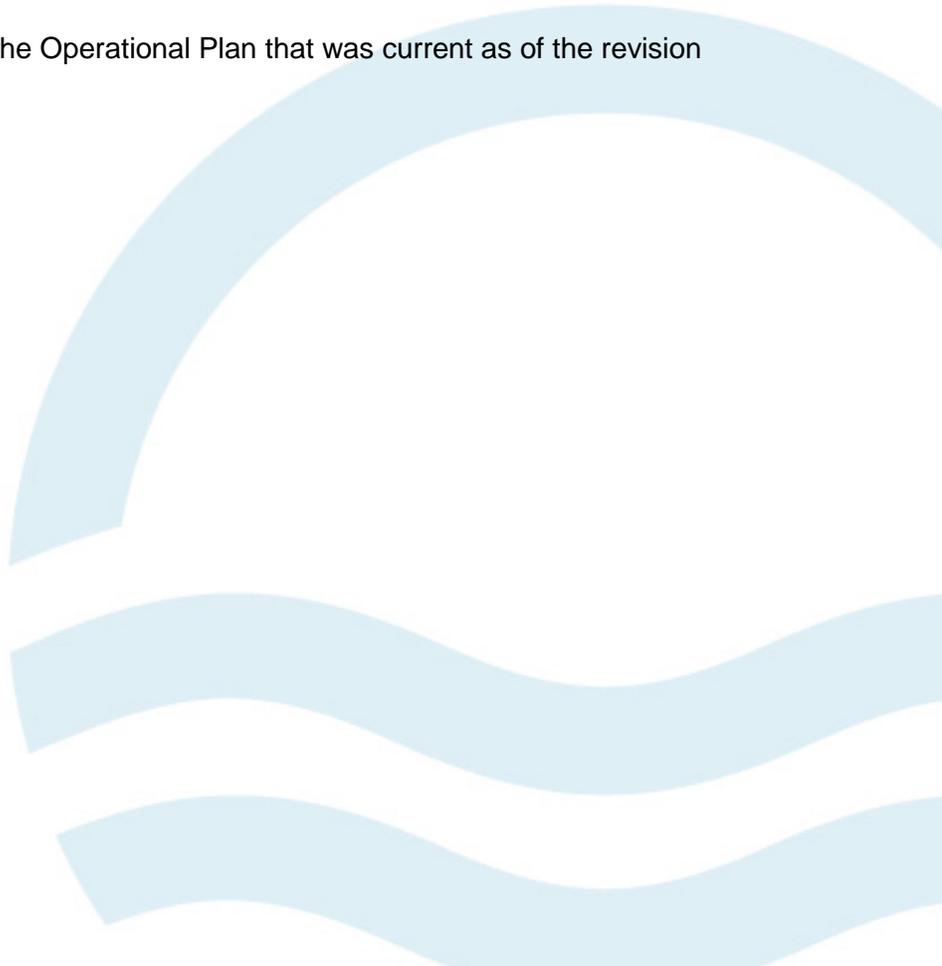
Cindy Sigurdson
Safety, Process and Compliance
Manager, Southwest Region

Date

Magda Badura
CAO/Treasurer

Date

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





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QEMS Proc.: OP-04
Rev Date: 2018-05-11
Rev No: 0
Pages: 1 of 1

QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS) REPRESENTATIVE

Reviewed by: QEMS Representative Approved by: Operations Management

1. Purpose

To identify and describe the specific roles and responsibilities of the QEMS Representative(s) for the West Elgin Distribution System.

2. Definitions

None

3. Procedure

3.1 The role of QEMS Representative for the West Elgin Distribution System is the Process and Compliance Technician (PCT). The Safety, Process and Compliance Manager will act as an alternate QEMS Representative when required.

3.2 The QEMS Representative is responsible for:

- Administering the QEMS for the West Elgin Distribution System by ensuring that processes and procedures needed for the facility’s QEMS are established and maintained;
- Reporting to Top Management on the facility’s QEMS performance and identifying opportunities for improvement;
- Ensuring that current versions of documents related to the QEMS are in use;
- Promoting awareness of the QEMS to all operations personnel; and
- In conjunction with Top Management, 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
2018-05-11	0	<i>Procedure issued – Information within OP-04 (s. 3) was originally set out in the main body of OCWA’s Operational Plan (revision 4 dated 2017-06-20). New Purpose, Definitions, Procedure, Related Documents and separate Revision History sections. Change to responsibilities: Operations Manager no longer considered QEMS Representative and SPC Manager to act as alternate as required (s. 3.1); added wording to clarify shared responsibilities for Top Management and QEMS Representative to ensure operations personnel are aware of applicable legislative and regulatory requirements (s. 3.2).</i>



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QEMS Proc.: OP-05
Rev Date: 2019-08-06
Rev No: 7
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DOCUMENT AND RECORDS CONTROL

Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

To describe how OCWA's QEMS documents are kept current and how QEMS documents and records are kept legible, readily identifiable, retrievable, stored, protected, retained and disposed of. Applies to QEMS Documents and QEMS records pertaining to the West Elgin 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

QEMS Document – any document required by OCWA's QEMS as identified in this procedure

QEMS Record – any record required by OCWA's QEMS 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 QEMS records or from the point of time when a QEMS document is replaced by a new or amended document

3. Procedure

- 3.1 Documents and records required by OCWA's QEMS and their locations are listed in Appendix OP-05A Document and Records Control Locations.
- 3.2 Internally developed QEMS documents and QEMS 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	QEMS Representative
Approval	Operations Management

- 3.4 The QEMS Representative is responsible for ensuring that current versions of QEMS documents are being used at all times. Current QEMS documents and records are



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DOCUMENT AND RECORDS CONTROL

Reviewed by: QEMS Representative

Approved by: Operations Management

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 QEMS documents and records. Copies of QEMS documents and records located outside of designated control locations are considered uncontrolled.

- 3.5 Access to OCWA's computer network infrastructure is restricted through use of individually-assigned usernames and passwords and local area servers. Network security is maintained by OCWA'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 QEMS records contained within internal electronic databases and applications (e.g., OPEX, PDM, WMS) is administered by designated application managers/trustees, requires the permission of Operations Management 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.

SCADA records are maintained as per Appendix OP-05A and are accessible to all staff when required.

- 3.6 Any employee of the drinking water system may request, (in writing) to the QEMS Representative, a revision be made to improve an existing internal QEMS 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 QEMS Representative communicates any changes made to QEMS documents to relevant operations personnel and coordinates related training (as required). Changes to corporately controlled QEMS documents are communicated and distributed to facility QEMS Representatives by OCWA's Corporate Compliance Group through e-mails, memos and/or provincial, regional hub/cluster or facility-level training sessions.

- 3.7 When a QEMS document is superseded, the hardcopy of the document is promptly removed from its location and forwarded to the QEMS 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. Electronic copies may be deleted by the QEMS representative once the retention requirements are met.



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DOCUMENT AND RECORDS CONTROL

Reviewed by: QEMS Representative

Approved by: Operations Management

3.9 QEMS documents and records are retained in accordance with applicable regulations and legal instruments. Relevant regulatory and corporate minimum retention periods are as follows:

Type of Document/Record	Minimum Retention Time	Requirement Reference
DWQMS Operational Plan	10 years	Director's Direction under SDWA
Internal QEMS Audit Results	10 years	OCWA Requirement
External QEMS Audit Results	10 years	OCWA Requirement
Management Review Documentation	10 years	OCWA 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*	OCWA 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
Operational checks, sampling and testing (e.g., chlorine residuals, turbidity, fluoride, sampling records), microbiological sampling and testing and chain of custodies	2 years	O. Reg. 170/03
Schedule 23 & 24 (LMR) and THM, HAA, nitrates, nitrites and lead program sampling and testing, Section 11 Annual Reports and Schedule 22 Summary Reports	6 years	O. Reg. 170/03
Sodium test results and related corrective action records/reports, 60 month fluoride test results (if the system doesn't fluoridate), Engineering Reports	15 years	O. Reg. 170/03
Lead samples, correction action records/reports for E. Coli, Total Coliforms and bacterial species	2 years	O. Reg. 170/03
Corrective action records/reports for chemical and radiological parameters under SDWA O. Reg. 169/03, pesticides not listed under O. Reg. 169/03 and health-related parameters in an order or approval	6 years (LMR)	O. Reg. 170/03
Flow Meter Calibration Records, Analyzer Calibration Reports Maintenance Records/Work Orders	2 years	O. Reg. 170/03



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DOCUMENT AND RECORDS CONTROL

Reviewed by: QEMS Representative

Approved by: Operations Management

3.10 The Operational Plan is reviewed for currency by the QEMS Representative during internal/external audit and Management Review processes. Other QEMS-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. QEMS documents and records are reviewed for evidence of control during each internal system audit as per OP-19 Internal QEMS Audits.

4. Related Documents

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

5. Revision History

Date	Revision #	Reason for Revision
2013-07-19	0	Procedure issued
2014-07-18	1	Add Critical Control Point Limit Reached Tracking Form to Table 1 as per OFI IA 2014-04-01; Revise wording in Section 5.6 to identify who receives requests as per OFI IA 2014-04-01; Revised Section 5.9 to include electronic copies as per OFI IA 2014-04-01; Section 5.10 added to include documents with no legislated retention period as per OFI IA 2014-04-01, change name of the Water Treatment Plant to Tri-County
2015-07-28	2	Update Table 1 as per OFI IA 2015-04-01; revise table 2 retention times to include more detail as per OFI EA 2015-08-01
2016-07-18	3	Change Senior Ops Manager to RHM and PCT to OCTL where appropriate; add equipment O&M Manuals to External QEMS Documents in Table 1 as per OFI IA 2016-03-24
2017-06-20	4	Added SOM and PCT, Changed OCTL to SPC Manager. Added electronic copy of vacation/training calendar, fixed spelling, added ops manual to internal documents, add electronic copy of MERP, fix name of ORO schedule as per OFI's identified in the IA 2017-03-27.
2018-05-11	5	QP-01 procedure renamed OP-05. Removed Scope and Responsibilities sections. Moved the former Table 1 (Designated location for documents and records required by OCWA's QEMS) to its own appendix (OP-05A). Assigned responsibility for ensuring current versions of QEMS documents are being used to the QEMS Representative (s. 3.4). Clarified that requests for revisions/new QEMS documents are made to the QEMS Representative (s. 3.6). Moved the former Table 2 (Relevant regulatory and corporate minimum retention periods) to be part of s. 3.9 and expanded on the minimum retention times for documents and records required to demonstrate compliance with legislation
2018-08-07	6	Revised "Reviewed by" QMS Representative to QEMS Representative as per IA July 20, 2018
2019-08-06	7	Revised as per IA- July 22, 2019 – how electronic copies are disposed of.



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QEMS Doc: OP-05A
 Rev Date: 2020-06-04
 Rev No: 8
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DOCUMENT AND RECORDS CONTROL LOCATIONS

Designated locations for documents and records required by OCWA's QEMS

DRCC = Document and Records Control Centre which is located at the Tri County Water Plant Office.

Type of Document/Record	Designated Document Control Location (HC = Hardcopy, E = Electronic)
Internal QEMS Documents	
CCP Limit Reached Tracking Form	E- \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Hub Files\Forms\Operations
Chain of Custody Forms	E- \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Hub Files\Chain of Custody
Chamber Inspection Forms	E- \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Hub Files\Forms\Operations
Community Complaint Form	E- \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Hub Files\Forms\Operations
Summary of Action Items Spreadsheet	E- \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Hub Files\Forms\Operations
Emergency/Essential Service and Supply Contact List	HC-FEP Binder E- \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Hub Files\Contact List
Emergency Response Plan (corporate)	E - OCWA's intranet
Facility Emergency Plans	HC-DRCC E- \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\9 FEP
Internal Audit Protocol and Report	E- \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Hub Files\Forms\Operations
On-call Schedule	E- \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Hub Files\Schedules--On call, rotations
Operational Plan	E - \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\7 Operational Plan
Operations Manual (OCWA)	HC- DRCC E- \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\8 Operations Manual
QEMS Policy	E - OCWA's intranet and public website; OP-02 HC - DRCC
Round Sheets	E- \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Hub Files\Rounds Sheets
Sampling Schedule Calendar	E- \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Hub Files\Sample Schedules
Standard Operating Procedures (referenced in Operational Plan and QEMS Procedures)	HC-DRCC E- \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\8 Operations Manual
Training Record	E- \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Hub Files\Forms\Operations



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DOCUMENT AND RECORDS CONTROL LOCATIONS

Type of Document/Record	Designated Document Control Location (HC = Hardcopy, E = Electronic)
Vacation Request Form	E-\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Hub Files\Forms\Administrative
WMS Work Orders	E-WMS Database
External QEMS Documents	
ANSI/NSF product registration documentation for Chemicals/Materials Used	E-\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Hub Files\Contractor Safety Program
Applicable federal and provincial legislation and municipal by-laws	Online at www.e-laws.gov.on.ca
AWWA Standards	E - \\Torwan\PCT\AWWA Standards
Drinking Water Works Permit	E-\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\2 ECA-MDWL-DWWP-Classification
DWQMS	E - https://www.ontario.ca
Engineering schematics/plans/drawings	HC-DRCC E-\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\10 Watermain Drawings
Maintenance/equipment manuals	HC-DRCC E - \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\8 Operations Manual
Municipal Drinking Water Licence	E-\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\2 ECA-MDWL-DWWP-Classification
Operator certificates	E-\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Hub Files\Operator Certificates and Licences
QEMS Records	
Annual Reports	E -\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\3 (Tri-County Cluster)\1266\5 Report\Annual Reports
AWQI Reports	E -\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\5 Reports\AWQI-Non-Compliance
Call back Reports	E-WMS Database
CCP Limit Reached Tracking Form	E-\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\6 Yellow Folder
Chain of Custodies	E - \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\6 Yellow Folder
Chamber Inspection Records	E-\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\5 Reports \Infrastructure Review \Infrastructure Reports\Chambers
Community complaint records	E – OPEX database
Summary of Action Items Spreadsheet	E -\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\5 Reports\Management Review



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DOCUMENT AND RECORDS CONTROL LOCATIONS

Type of Document/Record	Designated Document Control Location (HC = Hardcopy, E = Electronic)
External audit reports	E -\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\5 Reports\DWQMS Audits
External Calibration records	E - \\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\5 Reports\ Calibrations
Facility Operations Logbook(s)	HC – DRCC or facility
Health & Safety Inspections	E-TOWAN\SouthwestShared\Health and Safety Inspection Reports
Hydrant Inspection Records	E-\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\5 Reports \Infrastructure Review \Infrastructure Reports\Hydrants
Infrastructure review (capital/maintenance works recommendations)	E -\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\5 Reports\Infrastructure Review \Infrastructure Reviews and Capital
Internal and External QEMS Communications	E -\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\4 Correspondence\DWQMS E- email
Internal Calibration records	E - maintained through WMS
Internal QEMS audit reports	E -\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\5 Reports\DWQMS Audits
Operator training records	E - maintained in OCWA's Training Summary dB
Maintenance records	E - maintained in WMS
Management Review documentation	E -\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\5 Reports\ Management Review
MECP Inspection Reports	E-\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\5 Reports\MOE Inspections
Operations Reports	E -\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\ Area 3 (Tri-County Cluster)\1266\4 Correspondence\Client
Rounds sheets, in house lab results	HC - DRCC E-\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\6 Yellow Folder Process data maintained electronically through PDM
Sampling and Testing Records; Certificate of Analysis (Lab)	E - maintained through PDM E-\\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\6 Yellow Folder
SCADA Records	E – SCADA System
Tower Inspection Records	E-\\TORWAN\Elgin Middlesex Shared\Southwest Region



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DOCUMENT AND RECORDS CONTROL LOCATIONS

Type of Document/Record	Designated Document Control Location (HC = Hardcopy, E = Electronic)
	Files\Area 3 (Tri-County Cluster)\1266\5 Reports \Infrastructure Review \Infrastructure Reports\Tower Inspections
Training Records	HC- Admin Office E-e-reports and OCWA's Training Summary dB
Vacation Requests	HC-Administrative Office
Vacation Schedule	HC- Administrative Office E-Outlook
Valve Inspection Records	E-\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\5 Reports \Infrastructure Review \Infrastructure Reports\Valves
Watermain Repair Forms	E-\TORWAN\Elgin Middlesex Shared\Southwest Region Files\Area 3 (Tri-County Cluster)\1266\5 Reports \Infrastructure Review \Infrastructure Reports\Watermain Repair Forms

Revision History

Date	Revision #	Reason for Revision
2018-05-11	5	Appendix issued; Table was originally included within the Document and Records Control Procedure (QP-01) (last revision #4 dated 2017-06-20).
2018-08-07	6	Added Internal audit report documents, changed MOECC to MECP as per IA July 20, 2018
2019-08-06	7	Revised as per IA – July 22, 2019
2020-06-04	8	Added Health & Safety Inspection Reports Hydrant, Tower Inspection, Valve records and Watermain Repair forms as per IA



OPERATIONAL PLAN

West Elgin Distribution System

QEMS Proc.: OP-06
Rev Date: 2020-07-08
Rev No: 2
Pages: 1 of 5

DRINKING WATER SYSTEM

Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

To document the following for the West Elgin 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.

Primary Disinfection - means a process or series of processes intended to remove or inactivate human pathogens such as viruses, bacteria and protozoa in water.

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:

- (a) protecting water from microbiological re-contamination;
- (b) reducing bacterial regrowth;
- (c) controlling biofilm formation;
- (d) 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,

- (a) anything that conveys or stores water and is part of a treatment process, including any treatment equipment installed in plumbing,
- (b) anything 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
- (c) 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 West Elgin Distribution System is owned by the Corporation of the Municipality of West Elgin and is operated by the Ontario Clean Water Agency—Southwest Region (Tri-County Cluster). The West Elgin Distribution System services West Lorne, Rodney and rural areas of West Elgin. The West Elgin Distribution System (DWS# 260094627) is connected to following systems:



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DRINKING WATER SYSTEM

Reviewed by: QEMS Representative

Approved by: Operations Management

System Name	DWS #	Owner	Operating Authority
Tri-County Drinking Water System	260091117	Tri-County Water Board	OCWA—Southwest Region, Tri-County Cluster
Southwest Middlesex Distribution System	260005502	The Corporation of the Municipality of Southwest Middlesex	OCWA—Southwest Region, Alvinston/SWM Cluster
Dutton Dunwich Distribution System	220002967	The Corporation of the Municipality of Dutton Dunwich	Dutton Dunwich Water Department

The West Elgin Distribution System relies on the Tri-county Drinking Water System to supply the system with potable water that has met primary and secondary disinfection requirements. Previously, both systems were operated under the same drinking water system number. In 2014, the West Elgin Distribution System was separated from the Tri-County Drinking Water System.

A portion of the West Elgin Distribution System on Beattie Line is supplied by the Southwest Middlesex Distribution System through a connection on Beattie Line and Graham Road. This area relies on Southwest Middlesex Distribution System to supply water that has met primary and secondary disinfection requirements.

The West Elgin Distribution System contains 180 Kms, (50mm-400 mm) of watermains along with a water tower located in Rodney. The Rodney Tower contains re-chlorination facility using sodium hypochlorite in order to maintain secondary disinfection in the distribution system. There are sample stations, hydrants, blow offs and auto flushers located throughout the municipality for monitoring the system. The system serves 1760 active customers.

The West Elgin Distribution System is connected to the Southwest Middlesex Distribution System at the Southwest Middlesex Reservoir. There is also another connection to the Southwest Middlesex Distribution System through an interconnection located near the 401 on Graham Road in West Lorne. This was created when there was an emergency watermain break on the Southwest Middlesex Distribution System and is only used for maintenance and emergency situations.

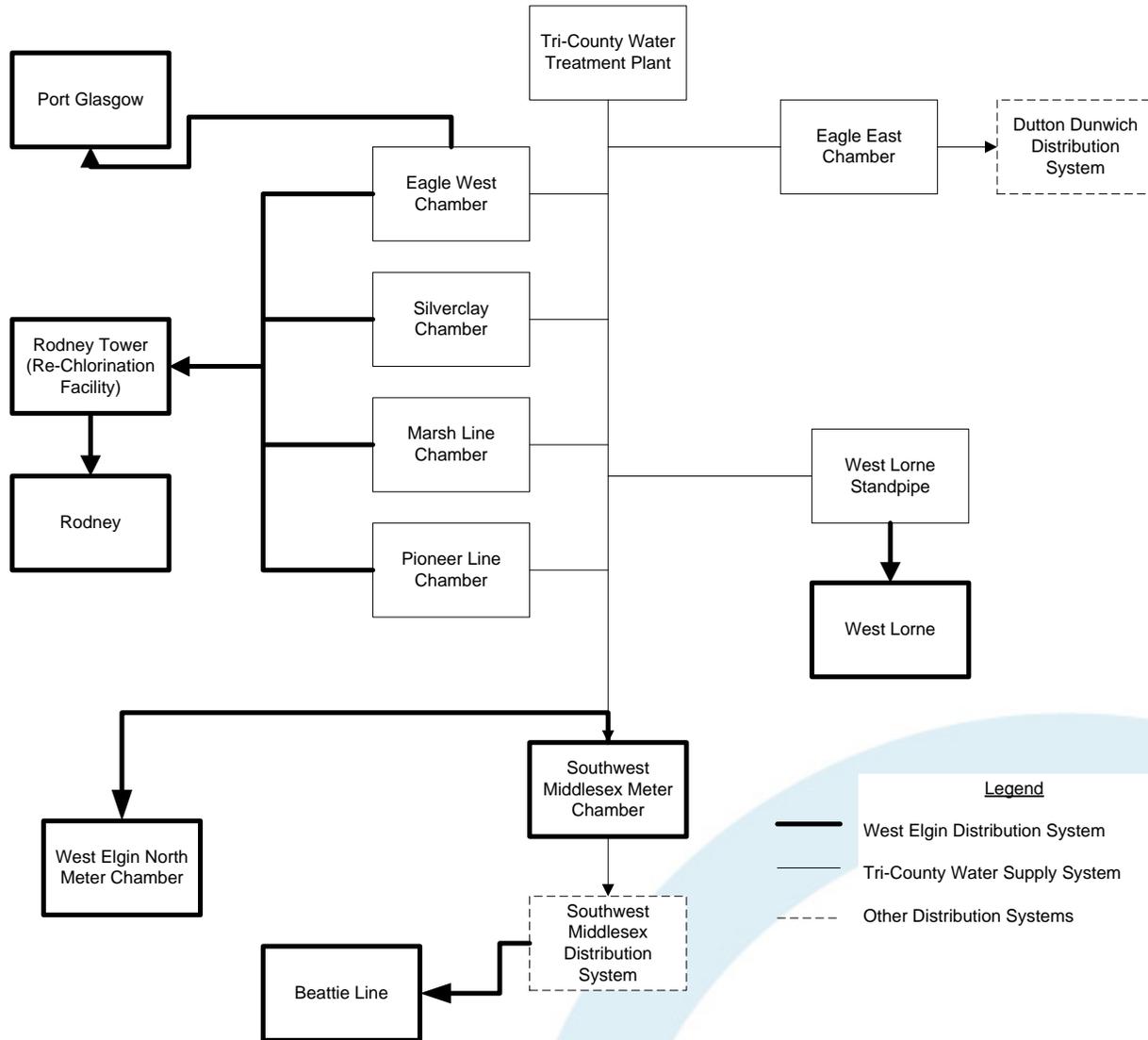
The West Elgin Distribution System is connected to the Dutton-Dunwich Distribution System at Pioneer line near the 401 service centre.

DRINKING WATER SYSTEM

Reviewed by: QEMS Representative

Approved by: Operations Management

3.2 Distribution System Flow Chart





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DRINKING WATER SYSTEM

Reviewed by: QEMS Representative

Approved by: Operations Management

3.3 Operational Challenges

The West Elgin Distribution System's main challenge is maintaining the free chlorine residual through the large network of water mains, especially during the summer months. Automatic flushers and ample sample points have been installed to monitor and maintain adequate disinfection residuals.

The Rodney Tower poses a challenge during the summer months in maintaining adequate free chlorine residuals beyond the normal range of the drawdown cycle in the tower. In Spring of 2018 a re-chlorination facility was installed at the Rodney Tower to help alleviate this issue.

Algae blooms can pose operational challenges at the Tri-County Drinking Water System which in turn pose a threat to the distribution systems it serves. If an algae bloom is suspected, sampling for microcystin is done on the raw and treated water during these possible contamination periods. Communication is provided to West Elgin Distribution System of any issues.

In 2012, manganese was identified in the raw water in the soluble form, therefore, able to pass through the membrane filtration system at the Tri-County Water Treatment Plant. The oxidation of manganese results in precipitation causing elevated turbidity levels and colour which can be observed by downstream users. The WTP has experienced short term episodes where the coloured water is released to the distribution system causing aesthetic issues.

3.4 Upstream and Downstream Critical Processes

Conditions upstream of the distribution system, at the Tri-county Drinking Water System and Southwest Middlesex Distribution System are monitored through SCADA, sampling, and operator observations. This information is relayed to the West Elgin Distribution System through the operating authority of the Tri-County Drinking Water System and Southwest Middlesex Distribution System in order to effectively operate the distribution system.

The West Elgin Distribution System relays information to the Municipality's it provides water to (downstream users) should there be any issues with the supply or quality of the drinking water. As well, these downstream users provide information to the West Elgin Distribution System in regards to the supply and quality of the water.

The West Elgin Distribution System relies on the proper installation and working order of backflow preventers on service connections in order to protect the quality of the water in the source water mains.

Autoflushers are routinely monitored to ensure proper working order and adequate flushing time in order to maintain free chlorine residuals in the distribution system.



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DRINKING WATER SYSTEM

Reviewed by: QEMS Representative

Approved by: Operations Management

4. Related Documents

SOP WEDS-05 Low Chlorine
SOP WEDS-13 Provisions of an Alternate Water Source
SOP WEDS-07 Community Complaints
Operations Manual

5. Revision History

Date	Revision #	Reason for Revision
2018-05-11	0	Procedure issued – Information within OP-06 was originally set out in the Main body of OCWA's Operational Plan (last revision #4 dated 2017-06-20). New Purpose, Definitions, Procedure, Related Documents and separate Revision History sections; add Rodney Tower Re-chlorination; update distribution system flow chart
2019-08-06	1	Updated as per EA – August 16, 2018 and IA – July 22, 2019
2020-07-08	2	Updated as per IA



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Rev Date: 2020-07-08
Rev No: 2
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RISK ASSESSMENT

Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

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 Operations Management ensures that operations personnel are assigned to conduct a risk assessment at least once every thirty-six months. At a minimum, the Risk Assessment Team must include the QEMS Representative and at least one member of Top Management.
- 3.2 The QEMS 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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RISK ASSESSMENT

Reviewed by: QEMS Representative

Approved by: Operations Management

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 and 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, OCWA has established mandatory Critical Control Points (CCPs).

As a minimum, the following must be included as CCPs (as applicable):

- Equipment or processes required to achieve primary disinfection (e.g., chemical and/or UV disinfection system, coagulant dosing system, filters, etc.)
 - Equipment or processes necessary for maintaining secondary disinfection in the distribution system
 - Fluoridation system
- 3.3.5 Additional CCPs for the system are determined by evaluating and ranking the hazardous events for the remaining activities/process steps (i.e., those not included as OCWA's minimum CCPs).
- 3.3.6 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:



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Approved by: Operations Management

Value	Likelihood of Hazardous Event Occurring
1	Rare – Estimated to occur every 50 years or more (usually no documented occurrence at site)
2	Unlikely – Estimated to occur in the range of 10 – 49 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

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.

3.3.7 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:

- 1) The associated hazardous event has a ranking of 12 or greater;
- 2) The associated hazardous event can be controlled through control measure(s);
- 3) Operation of the control measures can be monitored and corrective actions can be applied in a timely fashion;
- 4) Specific control limits can be established for the control measure(s); and
- 5) 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 QEMS Representative facilitates the verification of the currency of the information and the validity of the assumptions used in the risk



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Reviewed by: QEMS Representative

Approved by: Operations Management

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

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
2018-05-11	0	Procedure issued – Information within OP-07 was originally set out in the QEMS Procedure QP-02 Risk Assessment and Risk Assessment Outcomes (last revision #4 2017-06-20). Revised Purpose to reflect element 7 requirements only. Included minimum requirements for the Risk Assessment Team. Clarified role of QEMS Representative in coordinating the risk assessment and maintaining documents and records. Re-worded procedure for performing the risk assessment. Included reference to MOECC's "Potential Hazardous Events for Municipal Residential Drinking Water Systems". Removed requirements for documenting the outcomes of the risk assessment (now covered in OP-08). Changed annual review to at least once every calendar year and included potential considerations when performing the review.
2018-08-07	1	Removed operator from 3.1 and changed MOECC to MECP as per AI July 20, 2018
2020-07-08	2	Changed 3.1 to read one member of Top Management not Operations Management



OPERATIONAL PLAN

West Elgin Distribution System

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Rev Date: 2018-08-07
Rev No: 1
Pages: 1 of 2

RISK ASSESSMENT OUTCOMES

Reviewed by: QEMS Representative

Approved by: Operations 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 QEMS 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 for the outcome of 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 3.3.7 of OP-07).

3.3 Operations 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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RISK ASSESSMENT OUTCOMES

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Approved by: Operations Management

- 3.4 A summary of the results of the once every calendar review/36-month risk assessment is recorded in Table 3 of OP-08A.
- 3.5 Operations 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
- CCP Limit Reached Tracking Form
- MECP's "Potential Hazardous Events for Municipal Residential Drinking Water Systems"

5. Revision History

Date	Revision #	Reason for Revision
2018-05-11	0	Procedure issued – Information within OP-08 was originally set out in the QEMS Procedure QP-02 Risk Assessment and Risk Assessment Outcomes (last revision #4 2017-06-20) Clarified role of QEMS Representative in updating the information in OP-08A Summary of Risk Assessment Outcomes. Included requirements for how to document the risk assessment outcomes using the tables in OP-08A. Clarified responsibility of Operations Management to ensure Critical Control Limits are set and related procedures are developed. Included reference to OP-14 Review and Provision of Infrastructure to emphasize the need for Operations Management to review the risk assessment outcomes during the infrastructure review.
2018-08-07	1	Revised 3.2 to state outcomes of the hazardous events, revised 3.4 to state once every calendar year, changed MOECC to MECP as per AI July 20, 2018



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SUMMARY OF RISK ASSESSMENT OUTCOMES

Reviewed by: QEMS Representative

Approved by: Operations Management

Table 1: Risk Assessment Table

Note: Processes referred to in section 3.3.4 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	Description of Hazardous Event	Possible Outcome (Hazards/Risks)	Existing Control Measures	MECP Potential Hazardous Event/Hazard Reference # (see Table 4)	Likelihood	Consequence	Risk Value	CCP?
Water Supply	Water Quality Issue from Tri-County WTP	-Adverse Water Quality Incident (AWQI) -Boil Water Advisory -Aesthetic Issue	-Flushing -Community Complaints -SOP#: WEDS-01, WEDS-02, WEDS-07	1, 4, 7,8,11	3	3	9	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No – doesn't meet 3.3.7.1), 5)
				3, 5, 6, 8	2	3	6	
	Water Supply issue from Tri-County WTP	-Unable to supply water -Adverse Water Quality Incident (AWQI)	-Short term supply from the West Lorne Standpipe, Rodney Tower -Back up supply from Iona Interconnection -SOP#: WEDS-01, WEDS-06	1,2,4,6	1	3	3	
				3,5,8	2	3	6	
				7	3	3	9	
	Dialer	Failure of Alarm Dialer	-no monitoring of system -AWQI	-Regular maintenance by Tri-County DWS operators -Visual monitoring, site checks -SOP #: WEDS-01	3,4	3	3	
6					1	3	3	



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Reviewed by: QEMS Representative

Approved by: Operations Management

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards/Risks)	Existing Control Measures	MECP Potential Hazardous Event/Hazard Reference # (see Table 4)	Likelihood	Consequence	Risk Value	CCP?
SCADA System	Failure of Historian	-Loss of continuous monitoring information	-Retrieval of data from Eramosa at Tri-County DWS -Back up of data -Visual monitoring, site checks -Process analyzers -SOP #: WTP-21, WTP-25, ALRM-01	3,4	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No- doesn't meet 5.7.1, 5.7.2, 5.7.3, 3.3.7.4),5) <input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No- doesn't meet 3.3.7.1), 2), 3), 4), 5)
				6	1	2	2	
	Loss of Communication	-Loss of continuous monitoring system	-Retrieval of data from Eramosa -Onsite PLC to store data temporarily -Visual monitoring, site checks -Process Analyzers -SOP #: WEDS-03, WTP-08, WTP-21, WTP-25, WTP-34, ALRM-64	,3,4	3	2	6	
				6	1	2	2	
Rodney Tower	Low Level	-Low pressure in system -Low chlorine	-Storage of treated water at WTP and West Lorne Standpipe -Distribution chamber bypasses to supply water quicker to Rodney -SOP #: WEDS-05, WEDS-06, ALRM-63, ALRM-65	2,6	1	3	3	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No – doesn't meet 3.3.7.1)
				3,7	3	3	9	
	Low Chlorine	-AWQI: <0.05ppm for 15min on analyzer	-Regular monitoring from analyzer and grab samples -Flushing -SOP #: WEDS-01, WEDS-02, WEDS-05, ALRM-65	3,6	1	4	4	
				4,11	3	4	12	



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Reviewed by: QEMS Representative

Approved by: Operations Management

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards/Risks)	Existing Control Measures	MECP Potential Hazardous Event/Hazard Reference # (see Table 4)	Likelihood	Consequence	Risk Value	CCP?
	Power Failure	-loss of level control and communications	-Operate high lift pumps based on pressure at the plant -Manual readings from pressure gauge -Grab samples for free chlorine -Portable generator on site -SOP #: ALRM-63	1,6	1	2	2	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No – doesn't meet 3.3.7.1), 5)
				3,4	4	2	8	
Distribution	Chamber Failure -Air Release	-AWQI	-Regular Maintenance and annual inspection -SOP #: WEDS-01, WEDS-02	,3,4,6	2	3	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No - doesn't meet 3.3.7.1), 3), 4), 5)
	Chamber Failure -Flow Control	-Low pressure	-Manual controls -Bypass lines in chambers -SOP#: WEDS-06, ALRM-63	3,4,6	2	3	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No - doesn't meet 3.3.7.1), 3), 4), 5)
	Watermain Break	-AWQI -Low pressure	-Isolation of section of main -Manual operation of valve to maintain pressure on part of system -West Lorne Standpipe, Rodney Tower and WTP supply water to maintain pressure -AWWA Standard C651; MECP Watermain Disinfection Procedure -SOP#: WEDS-01, WEDS-06, WEDS-07, WEDS-08	1,3,6	2	3	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No – doesn't meet 3.3.7. 3), 4), 5)
4				4	3	12		



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SUMMARY OF RISK ASSESSMENT OUTCOMES

Reviewed by: QEMS Representative

Approved by: Operations Management

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards/Risks)	Existing Control Measures	MECP Potential Hazardous Event/Hazard Reference # (see Table 4)	Likelihood	Consequence	Risk Value	CCP?
	Adverse from Routine Sampling	-Boil Water Advisory -AWQI	-Flushing -SOP#: WEDS-01, WEDS-02, WEDS-09	1,6,7,8,11	2	4	8	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility
				4	3	4	12	<input checked="" type="checkbox"/> No – doesn't meet 3.3.7.3)
	Backflow Failure	-AWQI	-Inspections and maintenance on backflows -SOP#: WEDS-01	4,6	2	3	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No - doesn't meet 3.3.7.1), 3), 4), 5)
	Low Chlorine	-AWQI (<0.5mg/L grab sample)	-Sampling and monitoring schedule -Flushing -SOP#: WEDS-01, WEDS-02, WEDS-05	1,6,8	2	4	8	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility
				4	3	4	12	<input checked="" type="checkbox"/> No – doesn't meet 3.3.7.3)
	Biofilms	-Taste and Odour complaints -AWQI	-Routine sampling of HPC and free chlorine residuals -Maintenance (flushing) -SOP#: WEDS-01, WEDS-02, WEDS-07	1,4,8,11	2	3	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No - doesn't meet 3.3.7.1), 3), 5)
			6	1	3	3		
Aging Infrastructure failure	-AWQI -Reduced Flow -Biofilms -Main Breaks -Valve Failure	-Capital replacement projects, financial plans -Maintenance programs (flushing) -SOP#: WEDS-01, WEDS-02, WEDS-07, WEDS-08	1,6	2	3	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No - doesn't meet 3.3.7.1), 3), 4), 5)	
			3,4	3	3	9		
New Watermain/Service Installations failure	-AWQI -Boil Water Advisory	-Training, qualified persons -AWWA Standards, MDWL/DWWP requirements,	7,8	2	3	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP	



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Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards/Risks)	Existing Control Measures	MECP Potential Hazardous Event/Hazard Reference # (see Table 4)	Likelihood	Consequence	Risk Value	CCP?
			MECP Watermain Disinfection Procedure -SOP#: WEDS-01					identified for facility <input checked="" type="checkbox"/> No - doesn't meet 3.3.7.1), 3), 4), 5)
	Illegal Hydrant Use	-AWQI -Watermain Break -Low pressure	-SOP#: WEDS-01, WEDS-06, WEDS-08	6	2	3	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No - doesn't meet 3.3.7.1), 3), 4), 5)
	Illegal Connections	-AWQI	-SOP#: WEDS-01	6	3	3	9	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No - doesn't meet 3.3.7.1), 2), 3), 4)
Operations	Staffing Issue	Is not able to meet regulatory requirements	CP-03	n/a	3	3	9	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No - doesn't meet 3.3.7.1), 2), 4)

Table 2: Identified Critical Control Points (CCPs)

CCP	Critical Control Limits	Monitoring Procedures	Response, Reporting and Recording Procedures
Rodney Tower Low Chlorine	-0.40mg/L or less free chlorine for 600sec on AIT1 and 2 calls out alarm -0.30mg/L or less free chlorine for 600sec on AIT1 and 2 calls out alarm Ch 65	-Continuous Chlorine Analyzer -SCADA Monitoring -Alarms to Dialer and banner on SCADA -Grab samples using pocket	-Isolation of Tower -Draining of Tower -Overfilling of Tower -SOP #: WEDS-01, WEDS-10, WEDS-11, ALRM-65



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-Facility Emergency Plan

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

Related Standard Operating Procedures (SOPs):

- SOP# WEDS-01: Reporting Adverse Drinking Water Quality
- SOP# WEDS-02: Flushing
- SOP# WEDS-03: 72hr Review of Continuous Monitoring Data
- SOP# WEDS-04: Alarm Response
- SOP# WEDS-05: Low Free Chlorine Residual in Distribution System
- SOP# WEDS-06: Low Pressure in Distribution System
- SOP# WEDS-07: Community Complaints
- SOP# WEDS-08: Watermain Repair
- SOP# WEDS-09: Collection and Handling of Drinking Water Samples
- SOP# WEDS-10: Isolating, Draining, Filling of Rodney Tower
- SOP# WEDS-11: Critical Control Point (CCP) Limit Reached

Tri-County WTP Standard Operating Procedures (SOPs)

- SOP# WTP-08: 72hr Review of Continuous Monitoring Data
- SOP# WTP-21: Historian Data in Excel
- SOP# WTP-25: Historian Fault on SCADA Computer
- SOP# WTP-34: Review of Trending Data

Alarm Standard Operating Procedures

- SOP#ALRM-63: Rodney Elevated Tank Alarm
- SOP#ALRM-64: Rodney Elevated Tank Communications Failure
- SOP#ALRM-65: Rodney Elevated Tank Chlorine Alarms

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



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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
July 18, 2013	Conducted initial risk assessment	Dale LeBritton and Cindy Sigurdson	Risk Assessment completed
May 27, 2014	Risk Assessment Review	Cindy Sigurdson, Dale LeBritton	Reviewed Risk Assessment, made minor changes. The consequence for SCADA system historian faults reduced since it is a process analyzer and continuous monitoring is not required.
July 6, 2015	Annual Risk Assessment Review	Cindy Sigurdson, Dale LeBritton	Review of risk assessment; Added Low chlorine, vandalism and terrorism as an hazardous event in the distribution System; and low pressure as an outcome of illegal hydrant use; Revise name to Tri-County WTP from West Elgin; Revise name of SOP: AWQI to Reporting Adverse Drinking Water.
July 4, 2016	36 Month Risk Assessment	Cindy Sigurdson, Dale LeBritton	Revise/provide more information to the existing control measures; identify why the hazardous event isn't a CCP by referring to Step 5.7 criteria that is not met.
June 20, 2017	Annual Risk Assessment Review	Cindy Sigurdson	Add process analyzer under control measure for failure of historian and loss of communication, add portable generator under control measure for power failure.
May 11, 2018	Annual Risk Assessment Review	Terri-Lynn Thomson	Add in table 4 ad identify the reference numbers in Table 1
July 23, 2019	36-Month Risk Assessment redo. Once every calendar year review	Cindy Sigurdson, Terri-Lynn Thomson, Sam Smith	Separated risk value based on MECP Hazardous Events. Added second Rodney tower chlorine analyzer under CCPs
June 4, 2020	Annual Risk Assessment Review	Cindy Sigurdson, Terri-Lynn Thomson, Sam Smith	Added staffing issue due to current pandemic

Table 4: Potential Hazardous Event/Hazard Reference Numbers (based on MECP's "Potential Hazardous Events for Municipal Residential Drinking Water Systems" dated February 2017)

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



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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
N/A	Treatment Systems	9	Sudden changes to raw water characteristics (e.g., turbidity, pH)
N/A	Treatment Systems	10	Failure of equipment or process associated with primary disinfection (e.g., coagulant dosing system, filters, UV system, chlorination system)
X	Treatment Systems and Distribution Systems providing secondary disinfection	11	Failure of equipment or process associated with secondary disinfection (e.g., chlorination equipment, chloramination equipment)
N/A	Treatment Systems using Surface Water	12	Algal blooms

Revision History

Date	Revision #	Reason for Revision
2013-07-19	0	Initial risk assessment conducted
2014-05-27	1	Risk Assessment Reviewed
2014-07-18	2	Revise Table 2 Critical Control Limit to clarify set points
2015-07-06	3	Revised Table 1 as per annual review
2016-07-18	4	Revised as per 36 Month Redo
2017-06-20	5	Revised as per annual review
2018-05-11	6	Revised as per annual review, added MOECC's hazardous events
2018-08-07	7	Changed MOECC to MECP
2019-08-06	8	Updated as per 36 month risk assessment redo
2020-07-08	9	Updated as per annual review



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ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES

Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

To document the following for the West Elgin Distribution System:

- Owner;
- Organizational structure of the Operating Authority;
- QEMS roles, responsibilities and authorities of staff, Top Management and individuals/groups that provide corporate oversight; and
- Responsibilities for conducting the Management Review

2. Definitions

Operations Management – refers to the General Manager, Senior Operations Manager and/or Operations Manager that directly oversees a facility's operations

Senior Leadership Team (SLT) – members include President and CEO, Executive Vice President and General Counsel, Vice Presidents of OCWA's business units and Regional Hub Managers

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 Organizational Structure

The West Elgin Distribution System is owned by the Corporation of the Municipality of West Elgin and is represented by the Mayor and CAO/Clerk.

The organizational structure of OCWA, the Operating Authority, is outlined in appendix OP-09A: Organizational Structure.

3.2 Top Management

Top Management for the West Elgin Distribution System consists of:

- Operations Management – Tri-County Cluster
- Regional Hub Manager – Southwest Region
- Safety, Process & Compliance Manager – Southwest Region

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



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Approved by: Operations Management

- Endorsing the Operational Plan as per the Commitment and Endorsement procedure (OP-03);
- Ensuring that the QEMS meets the requirements of the DWQMS;
- Ensuring staff are aware of the applicable legislative and regulatory requirements;
- Communicating the QEMS according to the Communications procedure (OP-12);
- Providing resources needed to maintain and continually improve the QEMS;
- Appointing and authorizing a QEMS 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 Corporate Oversight

Roles, responsibilities and authorities for individuals/groups providing corporate oversight of OCWA's QEMS are summarized in Table 9-1 below.

Table 9-1: Corporate QEMS Roles, Responsibilities and Authorities

Role	Responsibilities and Authorities
Board of Directors	<ul style="list-style-type: none"> • Set the Agency's strategic direction, monitor overall performance and ensure appropriate systems and controls are in place in accordance with the Agency's governing documents • Review and approve the QEMS Policy
Senior Leadership Team (SLT)	<ul style="list-style-type: none"> • Establish the Agency's organizational structure and governing documents and ensure resources are in place to support strategic initiatives • Monitor and report on OCWA's operational and business performance to the Board of Directors • Review the QEMS Policy and recommend its approval to the Board • Approve corporate QEMS programs and procedures
Corporate Compliance	<ul style="list-style-type: none"> • Manage the QEMS Policy and corporate QEMS programs and procedures • Provide support for the local implementation of the QEMS • Monitor and report on QEMS performance and any need for improvement to SLT • Consult with the MECP and other regulators and provide compliance support/guidance on applicable legislative, regulatory and policy requirements • Manage contract with OCWA's DWQMS accreditation body

3.4 Regional Hub Roles, Responsibilities and Authorities



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Approved by: Operations Management

QEMS roles, responsibilities and authorities of Regional Hub personnel are summarized in Table 9-2 below. This information is kept current as per the Document and Records Control procedure (OP-05) and is communicated to staff as per the Communications procedure (OP-12).

Additional duties of employees are detailed in their job specifications and in the various QEMS programs and procedures that form, or are referenced in, this Operational Plan.

Table 9-2: QEMS Roles, Responsibilities and Authorities for the Tri-County Cluster.

Role	Responsibilities and Authorities
All Operations Personnel	<ul style="list-style-type: none"> • Perform duties in compliance with applicable legislative and regulatory requirements • Be familiar with the QEMS Policy and work in accordance with QEMS programs and procedures • Maintain operator certification (as required) • Attend/participate in training relevant to their duties under the QEMS • Document all operational activities • Identify potential hazards at their facility that could affect the environmental and/or public health and report to Operations Management • Report and act on all operational incidents • Recommend changes to improve the QEMS
Regional Hub Manager (Top Management)	<ul style="list-style-type: none"> • Oversee the administration and delivery of contractual water/wastewater services on a Regional Hub level • Fulfill role of Top Management • Ensure corporate QEMS programs and procedures are implemented consistently throughout the Regional Hub • Manages the planning of training programs for Regional Hub • Report to VP of Operations/SLT on the regional performance of the QEMS and any need for Agency-wide improvement • Act as Overall Responsible Operator (ORO) when required.
Operations Management (Top Management)	<ul style="list-style-type: none"> • 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 QEMS programs and procedures are implemented at his/her assigned facilities • Determine necessary action and assign resources in response to operational issues • Report to the Regional Hub Manager on facility operational performance • Ensure operational training is provided for the cluster (in



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Role	Responsibilities and Authorities
	<ul style="list-style-type: none"> consultation with the SPC Manager as required) Act as Overall Responsible Operator (ORO) when required.
<p>Safety, Process & Compliance (SPC) Manager (Top Management, Alternate QEMS Representative)</p>	<ul style="list-style-type: none"> Supervise facility compliance staff and provide technical and program support to the Regional Hub related to process control and compliant operations Fulfill role of Top Management Ensure corporate/regional QEMS programs and procedures are implemented consistently throughout the Regional Hub Assist in the development of site-specific operational procedures as required Ensure training on applicable legislative and regulatory requirements and the QEMS is provided for the Regional Hub (in consultation with Operations Management as required) Monitor and report to the Regional Hub Manager and Operations Management on the compliance status and QEMS performance within his/her Regional Hub and any need for improvement Act as alternate QEMS Representative (when required) Act as Overall Responsible Operator (ORO) when required.
<p>Process & Compliance Technician (PCT) (QEMS Representative)</p>	<ul style="list-style-type: none"> Implement, monitor and support corporate programs relating to environmental compliance and support management by evaluating and implementing process control systems at his/her assigned facilities Fulfill role of QEMS Representative (OP-04) Monitor, evaluate and report on compliance/quality status of his/her assigned facilities Implement facility-specific QEMS programs and procedures consistently at his/her assigned facilities Participate in audits and inspections and assist in developing, implementing and monitoring action items to respond to findings Report to the SPC Manager on QEMS implementation and identify the need for additional/improved processes and procedures at the regional/cluster/facility level (in consultation with the Operations Management as required) Communicates to Owners on facility compliance and DWQMS accreditation as directed Deliver/participate in/coordinate training including applicable legislative and regulatory requirements and the QEMS May act as Operator-in-Charge (OIC) and/or Overall Responsible Operator (ORO) when required.
<p>Operator/Mechanic</p>	<ul style="list-style-type: none"> Perform duties as assigned by Operations Management or designate Monitor, maintain and operate facilities in accordance with applicable regulations, approvals and established operating



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Approved by: Operations Management

Role	Responsibilities and Authorities
	<p>procedures</p> <ul style="list-style-type: none"> • Collect samples and perform laboratory tests 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 • May act as Operator-in-Charge (OIC) and/or Overall Responsible Operator (ORO) when required.
Operational and Maintenance (O&M) Team Lead	<ul style="list-style-type: none"> • Perform duties as assigned by Operations Management • Oversee maintenance activities on equipment and process in order to maintain compliance with applicable legislation, regulations, approvals and established operating procedures • Prepare and/or coordinate staff work assignments and follow up to ensure completion • Act for management during vacations or periodic absences. • Develop and provide O&M reports to management and recommend changes in operating procedures/processes to improve facility operations • Assist with facility operations including monitoring facility processes, reviewing process data and trouble-shooting • Assist management in developing annual O&M budgets and provide recommendations relating to potential O&M expenditures • May act as Operator-in-Charge (OIC) and/or Overall Responsible Operator (ORO) when required.
Administrative Assistant	<ul style="list-style-type: none"> • Support the administrative functions of the regional hub/cluster/facility including coordinating delivery of training as directed • Assist with entering operational data (including operational training records, process data and maintenance records) into the appropriate database as directed

4. Related Documents

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



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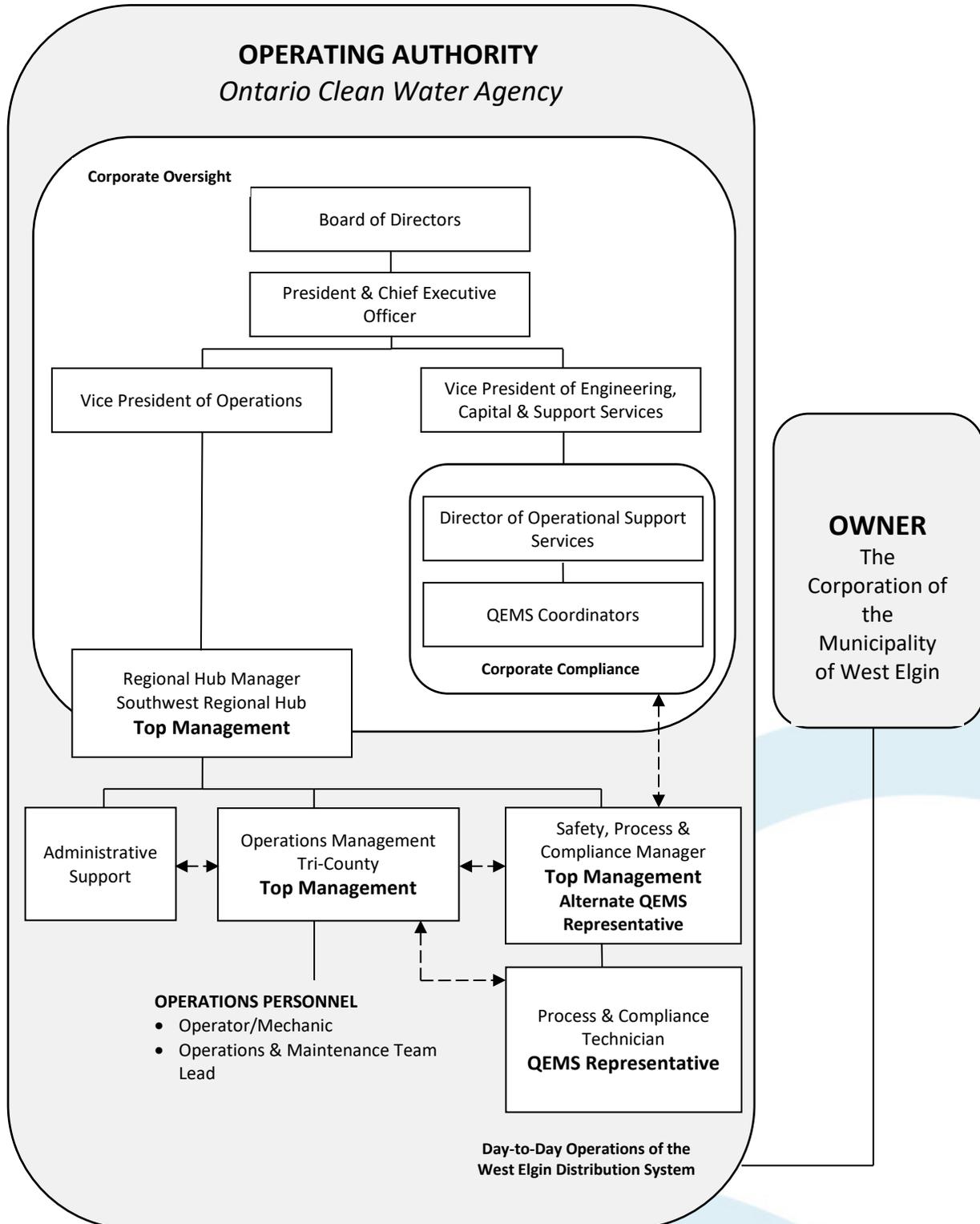
5. Revision History

Date	Revision #	Reason for Revision
2018-05-11	0	Procedure issued – Information within OP-09 was originally set out in the main body of OCWA's Operational Plan New Purpose, Definitions, Procedure, Related Documents and separate Revision History sections. Added definitions for Operations Management and Operations Personnel and throughout procedure replaced 'Senior Operations Manager' references with 'Operations Management'. (last revision # 4 dated 2017-06-20).
2018-08-07	1	Revised table 9.2 table to state Tri-County Cluster not Southwest Regional Hub. Changed MOECC to MECP as per IA July 20, 2018.
2019-08-06	2	Added Alt QEMS Rep to SPC manager position as per IA
2020-07-09	3	Added in System name in 1. As per IA

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Reviewed by: QEMS Representative

Approved by: Operations Management





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Reviewed by: QEMS Representative

Approved by: Operations Management

Revision History

Date	Revision #	Reason for Revision
2018-05-11	5	Appendix issued - Organizational Chart previously contained as Appendix C of the Operational Plan. Moved to a new Appendix. Revision history previously maintained within the operations plan revision 4 dated 2017-06-23. Removed two levels of Top Management (e.g. Facility Level and Corporate level), instead Top Management is only at the facility level and corporate has been moved to Corporate oversight. Added Administrative Support.

COMPETENCIES

Reviewed by: QEMS Representative

Approved by: Operations 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

Operations Management – refers to the General Manager, Senior Operations Manager and/or Operations Manager that directly oversees a facility’s operations

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

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 following table presents the minimum competencies required by operations personnel.

Position	Required Minimum Competencies
Operations Management	<ul style="list-style-type: none"> • Valid operator certification; minimum WD1 if 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 OCWA’s QEMS and the DWQMS • Training on relevant legislation, regulations, codes, policies, guidelines and procedures • Experience using computers and operational computerized systems • WMS Primary



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COMPETENCIES

Reviewed by: QEMS Representative

Approved by: Operations Management

Position	Required Minimum Competencies
Safety, Process & Compliance (SPC) Manager	<ul style="list-style-type: none"> Valid operator certification; minimum OIT or minimum WD1 if required to act as OIC and/or ORO Experience in providing technical support and leading/managing programs related to process control and compliant operations Experience and/or training in conducting compliance audits, and management system audits Experience and/or training in preparing and presenting informational and training material Training on OCWA's QEMS and the DWQMS Training on relevant legislation, regulations, codes, policies, guidelines and procedures Experience using computers and operational computerized systems WMS Primary
Operator/Mechanic	<ul style="list-style-type: none"> Valid operator certification; minimum OIT or minimum WD1 if required to act as OIC minimum WD 1 to act as ORO Training and/or experience in inspecting and monitoring drinking water system processes and performing/planning maintenance activities Training on OCWA's QEMS and the DWQMS Training on relevant legislation, regulations, codes, policies, guidelines and procedures Experience using computers and operational computerized systems
Process & Compliance Technician	<ul style="list-style-type: none"> Valid operator certification; minimum OIT or minimum WD 1 if required to act as OIC or ORO Experience and/or training in resolving/addressing compliance issues for drinking water systems Experience and/or training in monitoring, assessing and reporting on facility performance against legal requirements and corporate goals Experience and/or training in preparing and presenting informational and training material Experience in conducting management system audits or internal auditor education/training Training on OCWA's QEMS and the DWQMS Training on relevant legislation, regulations, codes, policies, guidelines and procedures Experience using computers and operational computerized systems WMS Primary
O&M Team Lead	<ul style="list-style-type: none"> Valid operator certification; minimum OIT or minimum WD 1 if required to act as OIC or ORO Experience and/or training in managing and planning multiple projects, assessing priorities and effectively coordinating operation and maintenance programs Training and/or experience related to operations and maintenance of drinking water system processes, principles and technologies Training on OCWA's QEMS and the DWQMS



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COMPETENCIES

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Position	Required Minimum Competencies
	<ul style="list-style-type: none"> • Training on relevant legislation, regulations, codes, policies, guidelines and procedures • Experience using computers and operational computerized systems WMS Primary

3.2 The following table presents the minimum competencies required by staff that provide administrative support to operations personnel.

Position	Required Minimum Competencies
Administrative Assistant	<ul style="list-style-type: none"> • Experience and/or training related to procurement and business administration practices • Training on OCWA's QEMS and the DWQMS • Training on relevant legislation, regulations, codes, policies, guidelines and procedures • Experience using computers

3.3 OCWA's recruiting and hiring practices follow those of the Ontario Public Service (OPS). As part of the OPS, minimum competencies, which include education, skills, knowledge and experience requirements, are established when designing the job description for a particular position. As part of the recruitment 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 OCWA's Operational Training Program 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 OCWA certified operators in meeting the legislative and regulatory requirements with respect to training.

3.5 The Program 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). A formal evaluation process is in place for all sessions under the Operational Training Program and is a critical part of the Program's continual improvement.

3.6 Awareness of OCWA's QEMS is promoted during the orientation of new staff, at facility/cluster/regional hub level training sessions and meetings and through OCWA's Environmental Compliance 101 (EC 101) course. All new staff are required to complete the EC 101 course within their first year of joining OCWA (depending on scheduling and availability). The EC 101 refresher course is required by all staff every 3 years. The purpose of the EC 101 course is to ensure staff are aware of applicable



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legislative and regulatory requirements, to promote awareness of OCWA's QEMS and to reinforce their roles and responsibilities under OCWA's QEMS.

- 3.7 Staff are also required to complete the mandatory environmental and health and safety compliance training listed in OCWA's Mandatory Compliance Training Requirements document, based on their position and/or the duties they perform. This list is available on OCWA's intranet.
- 3.8 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.
- 3.9 As part of OCWA's annual Performance Planning and Review (PPR) process, employee performance is evaluated against their job expectations. Professional development opportunities and training needs (which could include formalized courses as well as site-specific on-the-job training or job shadowing/mentoring) are identified as part of this process (and on an ongoing basis). In addition to this process, OCWA employees may at any time request training from either internal or external providers by obtaining approval from their Manager.
- 3.10 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 and Water Quality Analysts*. The Operations Management takes reasonable steps to ensure that every operator has the opportunity to attend training to meet the requirements.
- 3.11 It is the responsibility of operations personnel to ensure Operations 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 G license which is initially verified upon hire) and/or the validity of any other required certificates/qualifications.
- 3.12 Individual OCWA employee training records are maintained and tracked using a computerized system, the Training Summary database, which is administrated by OCWA's Training Department. Training records maintained at the facility are controlled as per OP-05 Document and Records Control.

4. Related Documents

OCWA's Training Resources (OCWA Intranet)
OCWA's Mandatory Compliance Training list (OCWA intranet)
Performance Planning and Review Database
OP-5 Document and Records Control



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Rev No: 3
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COMPETENCIES

Reviewed by: QEMS Representative

Approved by: Operations Management

OCWA Training Summary Database

5. Revision History

Date	Revision #	Reason for Revision
2018-05-11	0	Procedure issued – Information within OP-10 was originally set out in the main body of OCWA's Operational Plan (last revision 4 dated 2017-06-20) New Purpose, Definitions, Procedure, Related Documents and separate Revision History sections. Added definitions for Operations Management and Operations Personnel and throughout procedure replaced 'Senior Operations Manager' references with 'Operations Management'. Modified table in procedure (s. 3.1 and s. 3.2): removed/revised non-measurable competencies, added the word 'minimum' to competencies; removed 'Valid Class G Driver's License' listed under individual positions and referenced in s. 3.11; added competencies for Admin Assistants and merged competencies for Senior Operations Manager and Operations Manager under Operations Management. Updated training sections (s. 3.4 to s. 3.7) to reference new Environmental 101 course, Mandatory Compliance Training list and removed specific references to Orientation Training Program. Added s. 3.11 related to ensuring operators make Operations Management aware of changes to operator certification and other certificates/licenses. Other minor changes to wording.
2018-08-07	1	Revised competencies for all positions to be WD1 for ORO/OIC, revised 3.6 to state upon scheduling and availability as per IA July 20, 2018
2019-08-06	2	Added WMS Primary to required positions as per IA
2020-07-09	3	Added in the EC 101 refresher course and ORO level as per IA



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West Elgin Distribution System

QEMS Proc.: OP-11
Rev Date: 2020-07-09
Rev No: 8
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PERSONNEL COVERAGE

Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

To describe the procedure for ensuring that sufficient and competent personnel are available for duties that directly affect drinking water quality for the West Elgin 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.

(*Crown Employees Collective Bargaining Act, 1993*)

3. Procedure

3.1 Operations 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 West Elgin Distribution System is staffed by OCWA personnel as follows:

The regular hours are Monday to Friday 7:30 a.m. to 4:00 p.m, with a rotational on call schedule for 24/7 coverage

3.3 Operations personnel are assigned to act as and fulfill the duties of Overall Responsible Operator (ORO) and Operator-in-Charge (OIC) in accordance with SDWA O. Reg. 128/04.

An Overall Responsible Operator (ORO) is assigned with a minimum WD 1 to fulfill the duties. The ORO is communicated with all staff and designated in the facility logbook.

The designated OIC for each shift is recorded in the facility logbook.

3.4 Operations Management assigns an on-call operator for the time that the facility is not staffed (i.e., evenings, weekends and Statutory Holidays). The on-call shift change is the start of the business day on Monday and follows a weekly rotation of staff. A schedule of on call operators is prepared and is available as per OP-05.

* Based on the 2005 National Occupational Guidelines for Canadian Water and Wastewater Operators and International Board of Standards for Training, Performance and Instruction



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PERSONNEL COVERAGE

Reviewed by: QEMS Representative

Approved by: Operations Management

- 3.5 Operators routinely complete inspections of the system and facilities, details are recorded in the facility logbook and daily round sheets.
- 3.6 The SCADA system auto dialer is programmed to contact a contracted call-centre operator whenever there is an alarm condition. The call-centre operator contacts the on-call operator through a designated on-call pager. The on-call operator contacts the call-centre to acknowledge receipt of the alarm. If the nature of the alarm requires additional staff, the on-call operator can request assistance from any of the other certified operators. The on-call operator records details of the call-in in the facility logbook and call back reports in WMS.
- 3.7 Each manager (e.g. Operations Management/SPC Manager) 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.
- 3.8 OCWA's operations personnel are represented by the Ontario Public Service Employees Union (OPSEU). In the event of a labour disruption, Operations Management, together with the union, identifies operations personnel to provide "essential services" required to operate the facility so that the quality of drinking water is not compromised in any way.
- 3.9 A contingency plan for Critical Shortage of Staff is included in the Facility Emergency Plan. This plan provides direction in the event that there is a severe shortage of operations personnel due to sickness (e.g., pandemic flu) or other unusual situations.

4. Related Documents

OP-10 Competencies
Facility Logbook
Daily Round Sheets
On-Call Schedule
Call-Back Reports
Shift/Vacation Schedule
Critical Shortage of Staff Contingency Plan (Facility Emergency Plan)

5. Revision History

Date	Revision #	Reason for Revision
2013-07-19	0	Procedure issued
2014-07-18	1	Revise 5.2-hours and weekend checks and 5.3 OIC info
2015-07-28	2	Remove redundant statement in 5.3 re: OIC; Add ORO Schedule
2016-07-18	3	Revise to update Senior Ops Manager to RHM and PCT to OCTL where
2017-06-23	4	Changed RHM to SOM where required



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PERSONNEL COVERAGE

Reviewed by: QEMS Representative

Approved by: Operations Management

2018-05-11	5	QP-03 procedure renamed OP-11. Removed Scope and Responsibilities sections. Other minor edits in wording.
2018-08-07	6	Revised 3.3 to state WD1 as per AI July 20, 2018
2019-08-06	7	Added Call back reports as per the IA.
2020-07-09	8	Revised to remove ORO schedule as per IA



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West Elgin Distribution System

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Rev Date: 2020-07-09
Rev No: 6
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COMMUNICATIONS

Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

To describe the procedure for facility level internal and external QEMS-related communications between Top Management and:

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

2. Definitions

Operations Management – refers to the General Manager, Senior Operations Manager and/or Operations Manager that directly oversees a facility's operations

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 Operations Management and the QEMS Representative are responsible for identifying and coordinating any site-specific communications in relation to the status/development of the facility's QEMS.
- 3.2 Internal and external communication responsibilities and reporting requirements for emergency situations are set out under OCWA's Emergency Management Program (i.e., Facility Emergency Plan and OCWA's Emergency Response Plan). Refer to OP-18 Emergency Management for more information.
- 3.3 Communication with OCWA staff:
 - 3.3.1 Within the first year of hire (upon scheduling and availability), all staff are required to complete the Environmental Compliance 101 (EC101) course and refresher course. The objective of the EC 101 course is to ensure that staff are aware of applicable legislative and regulatory requirements and of OCWA's QEMS and to reinforce their roles and responsibilities under OCWA's QEMS.
 - 3.3.2 Operations Management are responsible for ensuring operations personnel receive site-specific training on the Operational Plan, the organizational structure for the facility including the roles and responsibilities and authorities (outlined in OP-09 Organizational Structure, Roles, Responsibilities and Authorities), QEMS Procedures and other related operating instructions and procedures as part of the orientation process and on an on-going basis as required.



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COMMUNICATIONS

Reviewed by: QEMS Representative

Approved by: Operations Management

3.3.3 The SPC Manager is responsible for ensuring training is provided for the Regional Hub (in consultation with Operations Management as required) on applicable legislative and regulatory requirements and the QEMS.

3.3.4 The QEMS Representative assists Operations Management and/or the SPC Manager in the coordination/delivery of training as required.

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

3.3.6 The QEMS Policy is available to all OCWA personnel through OCWA's intranet and as outlined in 3.6.2 of this procedure.

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

3.3.8 The QEMS Representative is responsible for ensuring that the Operations Management and the Safety, Process and Compliance Manager are informed regarding the compliance/quality status of the facility and QEMS implementation and any need for improved processes/procedures at the cluster/facility level.

3.3.9 The SPC Manager reports to the Regional Hub Manager on the compliance status, the QEMS performance and effectiveness, any need for improvement and on issues that may have Agency-wide significance. Operations Management reports to the Regional Hub Manager on facility operational performance.

3.4 Communication with the Owner:

3.4.1 The Operations Management ensures that the Owner is provided with QEMS updates and that they are kept informed of the status of the facility's operational and compliance performance during regularly scheduled meetings and/or through electronic and/or verbal communications. The QEMS Representative assists in the coordination of these meetings and with communicating the updates as directed.

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

3.5 Communications with Essential Suppliers and Service Providers:



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Reviewed by: QEMS Representative

Approved by: Operations Management

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

3.6 Communication with the Public:

3.6.1 Media enquiries must be directed to the facility's designated media spokesperson as identified in the Facility Emergency Plan. The media spokesperson coordinates with local and corporate personnel (as appropriate) and the Owner in responding to media enquiries.

3.6.2 OCWA's QEMS and QEMS Policy are communicated to the public through OCWA's public website. The QEMS Policy is also posted at Tri County Water Treatment Plant.

3.6.3 Facility tours of interested parties must be approved in advance by the Operations Management.

3.6.4 All complaints, whether received from the consumer, the community or other interested parties, are documented in the OPEX database. As appropriate, the Operations Management ensures that the Owner is informed of the complaint and/or an action is developed to address the issue in a timely manner. The QEMS Representative ensures that consumer feedback is included for discussion at the Management Review.

4. Related Documents

Facility Logbook
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
Facility Emergency Plan
Emergency Response Plan
OPEX Incident Reports

5. Revision History

Date	Revision #	Reason for Revision
2013-07-19	0	Procedure issued



Ontario Clean Water Agency

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COMMUNICATIONS

Reviewed by: QEMS Representative

Approved by: Operations Management

2014-07-18	1	Revise 3.0 to include Operator/Mechanics as per OFI IA 2014-04-01; Revise 5.2 to specify when the Env. Compliance course is taken as per OFI EA 2013-08-16; revise wording in 5.3, revise wording in 5.5 as per OFI IA 2014-04-01; 5.6 change to Tri-County Water Treatment Plant from West Elgin; 6.0 change OPEX Incident Report to Community Complaint as per OFI IA 2014-04-01
2016-07-18	2	Revise to change Senior Ops Manager to RHM and PCT to OCTL as appropriate; remove s 5.2 requirement of Env. Compliance course taken every 5 years to upon hire.
2017-06-23	3	Changed OCTL to SPC Manager, Changed RHM to SOM and OCTL to PCT where required.
2018-05-11	4	QP-04 procedure renamed OP-12. Removed Scope and Responsibilities sections. Added definitions for Operations Management and Operations Personnel. Reordered and created separate sections to clarify communications to each of the 4 parties. Clarified suppliers were those listed as essential as per Element 13 (as per DWQMS v. 2.0) and replaced references to Senior Operations Manager with 'Operations Management'. Updated training sections for OCWA personnel (s. 3.3.1 to s. 3.3.4) to reference new Environmental Compliance 101 course completed within first year of hire and to outline how training is coordinated between SPC Manager/Operations Management, and QEMS Representative. Included sections on R&Rs for performance reporting within OCWA (s. 3.3.7 to s. 3.3.9) and to Client (3.4.1). Replaced identification of media spokesperson (s. 3.6.1) with 'as identified in Facility Emergency Plan'. Added reference to site-specific records/documents used for recording tours (s. 3.6.3). Other minor edits.
2019-08-06	5	Added upon scheduling and availability to 3.3.1
2020-07-09	6	Added the EC 101 refresher course as per IA



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ESSENTIAL SUPPLIES AND SERVICES

Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

To describe OCWA's procedures for procurement and for ensuring the quality of essential supplies and services.

2. Definitions

Essential Supplies and Services – supplies and services deemed to be critical to the delivery of safe drinking water

3. Procedure

3.1 Essential supplies and services for the West Elgin Distribution System are contained in the Facility Emergency Plan, Essential/Emergency Service and Supply Contact List. The list is reviewed and updated at least once every calendar year by the QEMS Representative.

3.2 Purchasing is conducted in accordance with OCWA's Corporate Procurement and Administration policies, procedures and guidelines, which are adopted from those of the Ontario Public Service.

Purchases of capital equipment are subject to formal approval by the facility's owner.

3.3 As part of the corporate procurement process, potential suppliers/service providers are informed of relevant aspects of OCWA's QEMS through the tendering process and through specific terms and conditions set out in our agreements and purchase orders. Essential suppliers and service providers (including those contracted locally) are sent a letter that provides an overview of the relevant aspects of the QEMS.

3.4 Contractors are selected based on their qualifications and ability to meet the facility's needs without compromising operational performance and compliance with applicable legislation and regulations.

Contracted personnel including suppliers may be requested or required to participate in additional relevant training/orientation activities to ensure conformance with facility procedures and to become familiar with OCWA workplaces.

If necessary, appropriate control measures are implemented while contracted work is being carried out and communicated to all relevant parties to minimize the risk to the integrity of the drinking water system and the environment.

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 QEMS Representative is



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ESSENTIAL SUPPLIES AND SERVICES

Reviewed by: QEMS Representative

Approved by: Operations Management

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, turbidimeter, etc.) are conducted by operations personnel in accordance with equipment manuals and/or procedures (Refer to OP-17 Measurement Recording Equipment Calibration and Maintenance).
- 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 treatment process must meet AWWA Standards and be ANSI/NSF certified as per the Municipal Drinking Water Licence (MDWL).
- 3.9 The facility orders and receives ongoing deliveries of chemicals to satisfy current short-term needs based on processing volumes and storage capacities. Incoming chemical orders are verified by reviewing the manifest or invoice in order to confirm that the product received is the product ordered.
- 3.10 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/Emergency Service and Supply Contact List
 OP-17 Measurement Recording Equipment Calibration and Maintenance
 ANSI/NSF Documentation
 AWWA Standards
 MDWL
 Calibration Certificates/Records

5. Revision History

Date	Revision #	Reason for Revision
2013-07-19	0	Procedure issued
2016-07-18	1	Change Senior Ops Manager to RHM and PCT to OCTL; Remove "water" from s 5.1 name as per OFI EA 2015-08-11; add AWWA to s 6.0 as per OFI IA 216-03-24.
2017-06-23	2	Changed RHM to SOM and OCTL to PCT



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ESSENTIAL SUPPLIES AND SERVICES

Reviewed by: QEMS Representative

Approved by: Operations Management

2018-05-11	3	QP-05 procedure renamed OP-13. Removed Scope and Responsibilities sections. Changes to wording to provide clarification on ensuring quality of essential supplies and services (s. 3.5, 3.6, 3.7 and 3.9).
2018-08-07	4	Changed MOECC to MECP as per IA July 20, 2018



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Rev Date: 2019-08-06
Rev No: 6
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REVIEW AND PROVISION OF INFRASTRUCTURE

Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

To describe OCWA's procedure for reviewing the adequacy of infrastructure necessary to operate and maintain the West Elgin 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, Operations Management in conjunction with operations personnel 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 and with prioritizing each identified item. Documents and records that are reviewed may include:

- Maintenance records
- Call-back reports
- Adverse Water Quality Incidents (AWQIs) or other incidents
- Health & Safety Inspections
- MECP Inspection Reports
- Hydrant and Valve inspection records
- Tower Inspection Reports
- Distribution System Chamber Inspections Reports
- Watermain Repair Forms

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 6 year rolling Recommended Capital / Major Maintenance Report to assist the Owner and OCWA with planning infrastructure needs for the short and long-term. This report is submitted, at least once every calendar year by Operations Management, to the Owner for review and approval. Together with the Owner, Operations Management determines and documents timelines and responsibilities for implementation of priority items.

3.4 The final approved Recommended Capital / Major Maintenance Report forms the long term forecast for any major infrastructure maintenance, rehabilitation and renewal activities as per OP-15.

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



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REVIEW AND PROVISION OF INFRASTRUCTURE

Reviewed by: QEMS Representative

Approved by: Operations Management

4. Related Documents

Recommended Capital / Major Maintenance Report
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
2013-07-19	0	Procedure issued
2015-07-28	1	Revise 5.1 to include list of areas reviewed as per OFI EA 2014-08-01
2016-07-18	2	Revise to change Senior Ops Manager to RHM and PCT to OCTL.
2017-06-23	3	Changed RHM to SOM and OCTL to PCT
2018-05-11	4	QP-06 procedure renamed OP-14. Removed Scope and Responsibilities sections. Replaced 'once every 12 months' with 'once every calendar year' (s. 3.1) to reflect wording in DWQMS v. 2.0. Added s. 3.2 to consider the outcomes of the risk assessment under Element 8 during the review to reflect wording in DWQMS v. 2.0. Changes to wording to provide clarification on who is required to attend the review and what documents and records may be considered during the review (s. 3.1). Linked the procedure with OP-15 in terms of documenting a long-term forecast (s. 3.3 and s. 3.4).
2018-08-07	5	Changed MOECC to MECP as per IA July 20, 2018
2019-08-06	6	Update as per IA



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QEMS Proc.: OP-15
Rev Date: 2020-07-10
Rev No: 3
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INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL

Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

To describe OCWA's infrastructure maintenance, rehabilitation and renewal program for the West Elgin 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 OCWA, under contract with the Owner, maintains a computerized Work Management System (WMS) to manage maintenance, rehabilitation and renewal of infrastructure for which it is operationally responsible. The major components of the WMS consist of planned maintenance, unplanned maintenance, rehabilitation, renewal and program monitoring and reporting.

3.1.1 Planned Maintenance

Routine planned maintenance activities include: pump inspection, analyzer calibrations, flow meter calibrations, valve inspection, hydrant flushing and inspections, tower inspections, weekly inspections of the facility, etc.

Planned maintenance activities are scheduled in the WMS that 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 WMS work orders. Work orders are automatically generated on a daily, weekly, monthly, quarterly and annual schedule as determined based on manufacturer's recommendations and site specific operational and maintenance needs and are assigned directly to the appropriate operations personnel. This schedule is set up by the WMS Primary. Work orders are completed and electronically entered into WMS by the person



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INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL

Reviewed by: QEMS Representative

Approved by: Operations Management

responsible for completing the task. Records of these activities are maintained as per OP-05 Document and Records Control.

The Operations Management maintains the inventory of equipment in WMS 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 the Operations Management. Unplanned maintenance activities are recorded and entered into WMS by the person responsible for completing the unplanned maintenance activity.

3.1.3 Rehabilitation and Renewal

Rehabilitation and renewal activities including capital upgrades (major infrastructure maintenance) are determined at least once every calendar year in consultation with Operations Management and the Owner. A list of required replacement or desired new equipment is compiled and prioritized by Operations 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 facility needs (i.e. current year), the Recommended Capital / Major Maintenance Report also provides a long-term (i.e. rolling 6-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 facility 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. Additionally, Operations Management and operations personnel conduct a review of the drinking water system's infrastructure to assess its adequacy for the operation and maintenance of the system. (Refer to OP-14 Review and Provision of Infrastructure).

To assist in monitoring the effectiveness of the program Operations Management reviews the work order backlogs.

On a quarterly basis, the owner is provided an operations and maintenance report through the Operations Report.



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INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL

Reviewed by: QEMS Representative

Approved by: Operations Management

3.2 OCWA's infrastructure maintenance, rehabilitation and renewal program is initially communicated to the Owner through the operating agreement. OCWA's program is communicated to the Owner on a quarterly basis through the Operations Report and at a minimum of at least once every calendar year through submission of the Recommended Capital / Major Maintenance Report and through the results of the Management Review.

4. Related Documents

Minutes of Management Review
Recommended Capital / Major Maintenance Report
OP-05 Document and Records Control
OP-14 Review and Provision of Infrastructure

5. Revision History

Date	Revision #	Reason for Revision
2018-05-11	0	Procedure issued – Information within OP-15 (s. 3) was originally set out in main body of OCWA's Operational Plan (last revised on Rev 4 2017-06-20). New Purpose, Definitions, Procedure, Related Documents and separate Revision History sections. Added the requirement to ensure the long term forecast is reviewed at once every calendar year and to document a long term forecast (s. 3.1.3) to reflect in DWQMS v. 2.0. Minor wording updates to reflect OCWA's current WMS.
2018-08-07	1	Remove EMT report under 3.1.4 as per IA July 20, 2018.
2019-08-06	2	Added work order backlogs to 3.1.4 as per the IA
2020-07-10	3	Updated 3.1.3 to read 6 year plan as per IA



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QEMS Proc.: OP-16
Rev Date: 2020-07-13
Rev No:
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SAMPLING, TESTING AND MONITORING

Reviewed by: QEMS Representative

Approved by: Operations 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, the facility's Municipal Drinking Water License (MDWL) as well as sampling/testing and monitoring requirements listed within MECP orders/inspection reports, etc.
- 3.2 Sampling requirements for the facility are defined in the facility's sampling schedule which is available to operations personnel, at the location(s) noted in OP-05 Document and Records Control. The sampling schedule is maintained by the QEMS Rep and is updated as required.
- 3.3 Samples that are required to be tested by an accredited and licensed laboratory, 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 List (within the Facility Emergency Plan (FEP)).

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 OCWA's Process Data Management system (PDM).

- 3.4 Continuous monitoring equipment is used to sample and test for free chlorine residual at the Rodney Tower. Test results from continuous monitoring equipment are captured by the SCADA system and are reviewed by a certified operator in accordance with the requirements of SDWA O. Reg. 170/03.

The SCADA system also collects and records information on the following parameters related to process control and drinking water quality:

- Rodney Tower level
- pH
- Distribution system chamber flow rates



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Approved by: Operations Management

- 3.5 Adverse water quality incidents are responded to and reported as per SOP# WED-01: Reporting Adverse Water Quality.
- 3.6 In-house process control activities are conducted on a regular basis by the certified operator(s) on duty. In-house free chlorine residual samples are analyzed following approved laboratory procedures. The results of these activities are recorded on the rounds sheet and are entered into the PDM system. Any adjustments made to process parameters are recorded in the facility logbook.
- 3.7 Additional sampling, testing and monitoring related to the facility's most challenging conditions (i.e. maintaining chlorine residuals and dead ends) are included in the in-house process control activities as described in 3.6.
- 3.8 Upstream sampling, testing and monitoring activities take place within the Tri-County Drinking Water System. Chemical and bacterial parameters are sampled/tested/monitored in the treated water as well as chlorine residuals as per O. Reg. 170/03. A communication protocol is in place to ensure that the operators of the distribution system are notified by the Tri-County Drinking Water System of any changes in the quality of water supplied to the distribution system which may require operational adjustments. The West Elgin Distribution System relies on the Tri-County Drinking Water System to supply the distribution with safe drinking water.
- 3.9 Sampling, testing and monitoring results are readily accessible to the Owner by a request to the PCT. During regular meetings the performance of the system is discussed and results from sampling, testing and monitoring are provided to the owner.

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.

4. Related Documents

Facility Logbook
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) and Municipal Summary Report (O. Reg. 170 Schedule 22)
Process Data Management System (PDM)
Emergency/Essential Service and Supply Contact List (Contacts section of FEP)
Facility Emergency Plan (FEP) Binder
SOP# WED-01: Reporting Adverse Water Quality
Rounds Sheets



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SAMPLING, TESTING AND MONITORING

Reviewed by: QEMS Representative

Approved by: Operations Management

Sampling Schedule
SCADA Records

5. Revision History

Date	Revision #	Reason for Revision
2013-07-19	0	Procedure issued
2014-07-18	1	Add mechanic to 3.0 as per OFI IA 2014-04-01; revise 5.6 to include sampling parameters; change West Elgin Water Treatment Plant to Tri-County
2015-07-28	2	Change PDC to PDM, change Tri-County WTP to Tri-County Drinking Water System
2016-07-18	3	Revise to change Senior Ops Manager to RHM and PCT to OCTL where appropriate; include WEDS-01 in s 6.0
2017-06-23	4	Revise to Change RHM to SOM and OCTL to PCT
2018-05-11	5	QP-07 procedure renamed OP-16. Removed Scope and Responsibilities sections. Expanded information related to accredited and licensed laboratories (s. 3.3). Reordered some sections and other minor edits.
2018-08-07	6	Changed MOECC to MECP as per IA July 20, 2018
2019-08-06	7	Changed PCT to QEMS Rep in 3.2
2020-07-13	8	Revised 3.8 to read West Elgin



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MEASUREMENT AND RECORDING EQUIPMENT CALIBRATION AND MAINTENANCE

Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

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

2. Definitions

None

3. Procedure

- 3.1 All measurement and recording equipment calibration and maintenance 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 Operations Management establishes and maintains a list of measurement and recording devices and associated calibration and/or verification schedules using the automated Work Management System (WMS). When a new device is installed, it is added to the WMS system by the WMS Primary. The new device is tagged with a unique identification number and the maintenance schedule is set up. Work orders are then automatically generated as per the schedule (refer to OP-15 Infrastructure Maintenance, Rehabilitation and Renewal).
- 3.3 Details regarding the results of the calibration and/or verification are recorded within each individual work order generated by the WMS and retained as per OP-05 Document and Records Control.
- 3.4 Calibration and maintenance activities are carried out in accordance with procedures specified in the manufacturer's manual, instructions specified in WMS.

Type of Instrumentation	Instrument ID	WMS ID	Frequency
Flow Meter	Beattie Line Meter	0000164779	Annually
Flow Meter	Rodney Tower	0000313786	Annually
Chlorine Analyzer	AIT 1	0000313788	Quarterly
Chlorine Analyzer	AIT 2	0000164766	Quarterly
Portable Chlorine Kit	Pocket Colorimeter	0000164741	Monthly
Portable Chlorine Kit	Pocket Colorimeter	0000164669	Monthly
Portable Chlorine Kit	Pocket Colorimeter	0000315294	Monthly

- 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



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Reviewed by: QEMS Representative

Approved by: Operations Management

expired. Any expired standards, reagents and/or chemicals are appropriately disposed of and are replaced with new standards, reagents and/or chemicals as applicable.

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. The failure must be reported to the Operations Management/ORO 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 facility logbook. The Process and Compliance Technician 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.

4. Related Documents

Facility Logbook
WMS Records
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
2013-07-19	0	Procedure issued
2014-07-18	1	Add mechanic to 3.0 as per OFI IA 2014-04-01
2015-07-28	2	Add Table to 5.3 as per OFI IA 2015-04-01
2016-07-18	3	Revise to change from Senior Ops Manager to RHM and PCT to OCTL where appropriate.
2017-06-26	4	Added Chlorine kit -#0000164669, Changed RHM to SOM and OCTL to PCT where required as per IA 2017-03-27.
2018-05-11	5	QP-08 procedure renamed OP-17. Removed Scope and Responsibilities sections. Added s. 3.3 to clarify how calibration and/or verification activities are documented. Other minor edits.
2018-08-07	6	Added list of assets in 3.5 as per IA July 20, 2018
2019-08-06	7	Revised who is to be notified
2020-07-13	8	Revised analyzers as per IA



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Rev Date: 2018-05-11
Rev No: 5
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EMERGENCY MANAGEMENT

Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

To describe the procedure for maintaining a state of emergency preparedness at the facility level under OCWA's Emergency Management Program.

2. Definitions

Emergency Response Plan (ERP) – a corporate-level emergency preparedness plan for responding to and supporting serious (Level 3) operations emergencies

Facility Emergency Plan (FEP) – a facility-level emergency preparedness plan for responding to and recovering from operations emergencies

Operations Management – refers to the General Manager, Senior Operations Manager and/or Operations Manager that directly oversees a facility's operations

3. Procedure

3.1 The Facility Emergency Plan (FEP) is the corporate standard for emergency management at OCWA-operated facilities. The FEP supports the facility-level response to and recovery from Level 1, 2 and 3 events related to water and wastewater operations and directly links to the corporate-level Emergency Response Plan (ERP) for management of Level 3 events that require corporate support. Operations Management is responsible for establishing a site-specific FEP that meets the corporate standard for this drinking water system.

3.2 OCWA recognizes three levels of events:

Level 1 is an event that can be handled entirely by plant staff and regular contractors. The event and the actions taken to resolve it (and to prevent a reoccurrence, if possible) are then included in regular reporting (both internally and externally). Examples may include response to an operational alarm, first aid incident, small on-site spill, or a process upset that can be easily brought under control.

Level 2 is an event that is more serious and requires immediate notification of others (regulator, owner). Examples may include minor basement flooding, injury to staff that requires medical attention, or a spill that causes or is likely to cause localized, off-site adverse effects.

Level 3 is an actual or potential situation that will likely require significant additional resources and/or threatens continued operations. It may require corporate-level support including activation of the OCWA Action Group and opening of an Emergency Operations Centre (EOC) as described in the corporate ERP. Level 3 events usually involve intervention from outside organizations (client, emergency responders, Ministry of the Environment and Climate Change, media, etc.). Examples may include:



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- Disruption of service/inability to meet demand;
- Critical injury including loss of life;
- Breach of security that is a threat to public health;
- Intense media attention;
- Community emergency affecting water supply/treatment;
- Declared pandemic; or
- Catastrophic failure that could impact public health or the environment or cause significant property damage.

3.3 Potential emergency situations or service interruptions identified for the West Elgin Distribution System include:

- Unsafe Water
- Spill Response
- Critical Injury
- Critical Shortage of Staff
- Loss of Service
- Security Breach

3.4 The processes for responding to and recovering from each potential emergency situation/service disruption are documented within a site-specific contingency plan (CP). The CPs and related standard operating procedures (SOPs) are contained within the FEP.

3.5 OCWA's training requirements related to the FEP are as follows:

Training Topic	Training Provider	Type of Training	Frequency	Required For
Establishing and maintaining a FEP that meets the corporate standard	Safety, Process and Compliance Manager and/or Corporate Compliance (as required)	On-the-Job Practical	Upon hire and when changes are made to the corporate standard*	PCTs (or others identified by the Operations Management)
Contents of the site-specific FEP	Facility Level (coordinated by QEMS Representative)	On-the-Job Practical	Upon hire and when changes to the FEP are made*	All operations personnel with responsibilities for responding to an emergency

*Note: Changes to the corporate standard or site-specific FEP may only require the change to be communicated to Operations for implementation. Therefore, not all changes will require training.

3.6 At least one CP must be tested each calendar year and each CP must be reviewed at least once in a five-calendar year period. The reviews and tests are recorded on the FEP-01 Contingency Plan Review/Test Summary Form and in WMS as appropriate. This record includes the outcomes of the review/test, and identifies any opportunities for improvement and actions taken. A scheduled test of a CP may be regarded as a review of that particular CP as long as the outcomes are evaluated using the FEP-01 form. A CP-related response to an actual event may also be considered a review or a



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Approved by: Operations Management

test. A review of the incident including lessons learned should be recorded on FEP-01 following the resolution of the actual event, along with any opportunities for improvement/actions identified.

3.7 Revisions to the CPs, SOPs and other FEP documents are made (as necessary) following a review, test, actual event or other significant change (e.g., changes in regulatory requirements, corporate policy or operational processes and/or equipment, etc.). Results of the emergency response testing and any opportunities for improvement/actions identified are considered during the Management Review (OP-20).

3.8 Roles and responsibilities for emergency management at OCWA-operated facilities are set out in the FEP. Specific roles and responsibilities related to a particular emergency situation or service interruption (including those of the Owner where applicable) are set out in the relevant site-specific CP. A general description of the respective responsibilities of the Owner and the operating authority in the event an emergency occurs is included in the service agreement with the Owner (as required by the *Safe Drinking Water Act*).

3.9 Where they exist, any relevant sections of the Municipal Emergency Response Plan (MERP) are included or referenced in the appendices section of the FEP. Measures specified in the MERP are incorporated into CPs where appropriate.

3.10 An emergency contact list in conjunction with the essential supplies and services list is contained within the FEP and is reviewed/updated at least once per calendar year. An emergency communications protocol is contained within the FEP. Specific notification requirements during emergency situations or service interruptions are set out in the individual CPs and in the ERP.

4. Related Documents

- Facility Emergency Plan
- Corporate Emergency Response Plan
- FEP-01 Contingency Plan Review/Test Summary Form
- WMS
- Municipal Emergency Response Plan (as applicable)
- Essential/Emergency Service and Supply Contact List (Contacts section of FEP)
- OP-20 Management Review

5. Revision History

Date	Revision #	Reason for Revision
2013-07-19	0	Procedure issued



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EMERGENCY MANAGEMENT

Reviewed by: QEMS Representative

Approved by: Operations Management

2014-07-18	1	revise wording in 5.2 to specify site specific contingencies as per OFI IA 2014-04-01; add mechanic to 3.0 as per OFI IA 2014-04-01; revised wording in 5.3 as per OFI EA 2013-08-16
2015-07-28	2	Revise 5.3 frequency of review of contingency plans as per corporate
2016-07-18	3	Revise to change from Senior Ops Manager to RHM and PCT to OCTL where appropriate.
2017-06-26	4	Revise to Change RHM to SOM. Added PCT and changed OCTL to SPC Manager.
2018-05-11	5	QP-09 procedure renamed OP-18. Removed Scope and Responsibilities sections and reordered some sections. Added definition 'Operations Management'. Throughout procedure replaced 'Senior Operations Manager' references with 'Operations Management'. Removed references to 'OCWA's Approach to Facility Emergency Planning' document throughout procedure and referenced FEP instead. Aligned wording for level 1, 2 & 3 events (s. 3.2) with wording in 'OCWA's Emergency Response Plan'. Updated training section to include role of SPC Manager (s. 3.5) and expanded testing/review section specifically to clarify how an actual test is documented (s. 3.6). Other minor edits



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INTERNAL QEMS AUDITS

Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

To describe the procedure for conducting internal audits at the facility level that evaluate the conformance of OCWA's Quality & Environmental Management System (QEMS) to the requirements of the Drinking Water Quality Management Standard (DWQMS).

This procedure applies to Internal QEMS Audits conducted at the West Elgin Distribution System for the purpose of meeting the DWQMS requirements for internal audits.

Note: This procedure does not apply to internal compliance audits conducted in accordance with OCWA's Internal Audit Program.

2. Definitions

Audit Team – one or more Internal Auditors conducting an audit

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

Internal QEMS 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 QEMS 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 QEMS audit are:

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



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3.1.2 The scope of an internal QEMS audit includes activities and processes related to the QEMS as documented in the Operational Plan.

3.1.3 The criteria covered by an internal QEMS audit include:

- Drinking Water Quality Management Standard (DWQMS)
- Current Operational Plan
- QEMS-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 QEMS 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 QEMS Representative is responsible for maintaining the internal QEMS audit schedule. The audit schedule may be modified based on previous audit results.

3.3 Internal Auditor Qualifications

3.3.1 Internal QEMS audits shall only be conducted by persons approved by the QEMS 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 QEMS 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



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personnel, audit team assignments, etc.).

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 QEMS 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 QEMS 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 Operations 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 QEMS 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 QEMS Representative. The submitted documentation must identify (at a minimum):



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- Audit objectives, scope and criteria;
- Audit Team member(s) and audit participants;
- Date(s) and location(s) where audit activities were conducted;
- 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 QEMS Representative distributes the audit results to Top Management and others as appropriate.

3.6.4 The QEMS Representative ensures that results of internal QEMS 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 QEMS 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 QEMS audit records are filed by the QEMS 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
Summary Table of Action Items Spreadsheet

5. Revision History

Date	Revision #	Reason for Revision
2013-07-19	0	Procedure issued
2014-07-18	1	Revise 5.7 to identify how OFIs are addressed as per OFI EA 2013-08-16



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INTERNAL QEMS AUDITS

Reviewed by: QEMS Representative

Approved by: Operations Management

2015-07-28	2	Revise to new corporate template as per OFI IA 2015-04-01
2016-07-18	3	Revise to change from Senior Ops Manager to RHM and PCT to OCTL where appropriate
2017-06-26	4	Revise to Change RHM to SOM where appropriate. Changed OCTL to SPC Manager. Added PCT
2018-05-11	5	QP-10 procedure renamed OP-19. Removed Scope and Responsibilities sections and moved scope wording to purpose section. Added definition 'Objective Evidence' and modified 'non-conformance' definition. Replaced 'audit evidence' with 'objective evidence', and 'conformity' with 'conformance' throughout procedure. Replaced 'once every 12 months' with 'once every calendar year' (s. 3.2.1, s. 3.2.3 and s. 3.4.1) to reflect wording in DWQMS v. 2.0. Added s. 3.2.3 (and modified s. 3.4.1) to describe the frequency for auditing all DWSs covered in multi-facility Operational Plans. Changed s. 3.4.2 to include preventive actions, the results of the management review and the status/consideration of OFIs. Included wording 'for each element', and 'identified referencing the requirement that was not met' to s. 3.6.2. Moved description of process for corrective actions from QP-10 s. 5.7 and OFIs from QP-10 s. 5.8 to OP-21. Added s. 3.7 to refer to OP-21.
2019-08-06	6	Changed DWQMS Corrective Action Report to Summary Table of Action Items Spreadsheet



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MANAGEMENT REVIEW

Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

To describe the procedure for conducting a Management Review of the Quality & Environmental Management System (QEMS) 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 OCWA's Quality & Environmental Management System (QEMS)

Operations Management – refers to the General Manager, Senior Operations Manager and/or Operations Manager that directly oversees a facility's operations

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. OCWA has defined Top Management for the [Drinking Water System] as:

- Operations Management – Tri-County Cluster
- Regional Hub Manager – Southwest Regional Hub
- Safety, Process & Compliance (SPC) Manager – Southwest Regional Hub

3. Procedure

3.1 Top Management ensures that a Management Review is conducted at least once every calendar year.

Management Reviews for more than one drinking water system may be conducted at the same meeting provided the systems belong to the same owner and the considerations listed in section 3.4 below are taken into account for each individual system and documented in the Management Review meeting minutes.

3.2 At a minimum, the QEMS Representative, and 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;



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Approved by: Operations Management

- 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);
- 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 QEMS;
- l) Consumer feedback;
- m) The resources needed to maintain the QEMS;
- 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 QEMS 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 QEMS Representative ensures that minutes of and actions resulting from the Management Review meeting are prepared and distributed to the appropriate OCWA Top Management, personnel and owner/CAO.

3.9 The QEMS Representative monitors the progress and documents the completion of actions resulting from the Management Review using the Summary Table of Action Items Spreadsheet.

4. Related Documents

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



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MANAGEMENT REVIEW

Reviewed by: QEMS Representative

Approved by: Operations Management

5. Revision History

Date	Revision #	Reason for Revision
2013-07-19	0	Procedure issued
2014-07-18	1	Revise to include MOE comments on the QEMS (Inspections, MDWL, DWWP) and re-endorsement discussion as per OFI EA 2013-08-16; change 5.4 to read PCT instead of QEMS Representative
2015-07-28	2	Add note to 5.2 for when re-endorsement is considered as per OFI EA 2014-08-01
2016-07-18	3	Revise to change from Senior Ops Manager to RHM and PCT to OCTL where appropriate; change s 5.4 from municipal representative to CAO as per OFI EA 2015-08-11.
2017-06-26	4	Changed RHM to SOM and added PCT and changed OCTL to SPC Manager.
2018-05-11	5	Removed Scope and Responsibilities sections. Added definitions for Top Management and Operations Management. Revisions based on new requirements of the Standard; at least once every 12 months changed to once every calendar year (s. 3.1) and efficacy changed to effectiveness (s. 3.4). Added s. 3.2 and s. 3.3 to describe who is participating in the Management Review process. Added clarification on including any preventive actions implemented to address Opportunities for Improvement (OFI) or rationale as to why OFIs were not implemented when reviewing audit results (s. 3.4.e). Added Best Management Practices (BMPs) as a standing agenda item (s. 3.4.q). Added s. 3.5 to include consideration of BMPs and link OP-20 to OP-21 Continual Improvement.
2020-07-14	6	Added the summary table in 3.9.



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Reviewed by: QEMS Representative

Approved by: Operations Management

1. Purpose

To describe the procedure for tracking and measuring continual improvement of the Quality & Environmental Management System (QEMS) for the *West Elgin 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 OCWA strives to continually improve the effectiveness of its QEMS 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 QEMS 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 QEMS Representative (in consultation with Operations Management and/or the SPC Manager) 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 QEMS Representative determines the corrective action needed based on this consultation. The Operations Management (or designate) assigns responsibility and a target date for resolution.



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3.2.4 The QEMS Representative ensures corrective actions are documented using the Summary Table of Action Items Spreadsheet. The QEMS 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 QEMS audits and are considered during the Management Review. If there is evidence that the action taken was not effective, the Operations 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 QEMS 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/Regional Hub or OCWA-wide data/trends;
- non-conformances identified at other drinking water systems; or
- a result of considering a BMP.

3.3.2 The QEMS Representative (in consultation with Operations Management and/or the SPC Manager) 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.

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

3.3.4 The implementation of preventive actions are tracked by the QEMS Representative using the Summary Table of Action Items Spreadsheet.

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

3.4 The QEMS Rep. and Operations Management monitor corrective/preventive actions on an ongoing basis and review the status and effectiveness of the actions during



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subsequent Management Review meetings.

3.5 Best Management Practices (BMPs)

3.5.1 The QEMS Representative and/or Operations Management in consultation with the SPC Manager 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:

- Facility/Regional Hub practices developed and adopted as a result of changes to legislative or regulatory requirements, trends from audit findings or drinking water system performance trends;
- OCWA-wide BMPs/guidance or recommended actions;
- Drinking water industry based standards/BMPs or recommendations; or
- Those published by the Ministry of the Environment, Conservation and 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
Summary Table of Action Items Spreadsheet.

5. Revision History

Date	Revision #	Reason for Revision
2018-05-11	0	Procedure issued – The original information within the main body of OCWA’s Operational Plan (Revision 4 dated 2017-06-20) was not used in OP-21 as it did not meet the requirements of the new DWQMS v. 2.0. Information from QP-10 Internal Audit (s. 5.7 and s. 5.8) was incorporated into s. 3.2 and s. 3.3 of OP-21 but was modified to address non-conformances identified from additional inputs other than internal audits and preventive actions resulting from means other than OFIs from internal audits. In addition R&Rs were revised to include the SPC Manager, and to clarify the role of the QEMS Representative in investigating and determining corrective and preventive actions needed. A section on Best Management Practices (s. 3.5) was added to meet the new requirements of DWQMS v. 2.0.



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Approved by: Operations Management

2018-08-07	1	Changed Ministry of the Environment and Climate Change to Ministry of the Environment. Conservation and Parks as per IA July 201, 2018
2019-08-06	2	Changed DWQMS Corrective Action Report to Summary Table of Action Items Spreadsheet as per the IA