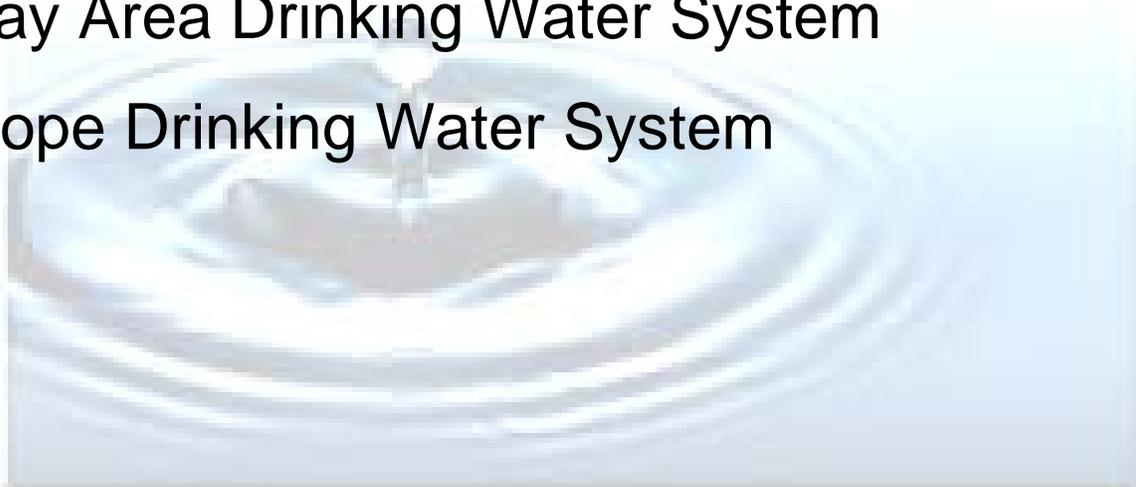


# MULTI-FACILITY OPERATIONAL PLAN

For the following Drinking Water  
Systems owned by the Corporation of  
the Township of Tay:

Tay Area Drinking Water System

Rope Drinking Water System



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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.



Ontario Clean Water Agency

**OPERATIONAL PLAN**  
The Corporation of the Township of Tay  
(Multi-facility)

QEMS Doc: OP-ToC  
Issue Date: 2022-10-07  
Pages: 1 of 1

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Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

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# OPERATIONAL PLAN

The Corporation of the Township of Tay  
(Multi-facility)

QEMS Proc.: OP-01  
Rev Date: 2022-10-07  
Rev No: 0  
Pages: 1 of 2

## QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS)

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

### 1. Purpose

To document OCWA's Quality & Environmental Management System (QEMS). This Operational Plan defines and documents the QEMS for the Rope and Tay Area Drinking Water Systems 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 OCWA is the contracted Operating Authority for the Corporation of the Township of Tay Drinking Water Systems, which includes the following facilities:

- Tay Area Drinking Water System
- Rope Drinking Water 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 facilities listed above fulfils the requirements of the MOECC's DWQMS. The 21 QEMS Procedures within this Operational Plan align with the 21 elements of the DWQMS.

### 4. Related Documents

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



**OPERATIONAL PLAN**  
The Corporation of the Township of Tay  
(Multi-facility)

QEMS Proc.: OP-01  
Rev Date: 2022-10-07  
Rev No: 0  
Pages: 2 of 2

**QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS)**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

**5. Revision History**

Date	Revision #	Reason for Revision
2019-06-10	0	Procedure issued.



Ontario Clean Water Agency

# OPERATIONAL PLAN

The Corporation of the Township of Tay  
(Multi-facility)

QEMS Proc.: OP-02  
Rev Date: 2022-10-07  
Rev No: 0  
Pages: 1 of 2

## QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS) POLICY

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

### 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 public website. 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

# OPERATIONAL PLAN

The Corporation of the Township of Tay  
(Multi-facility)

QEMS Proc.: OP-02  
Rev Date: 2022-10-07  
Rev No: 0  
Pages: 2 of 2

## QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS) POLICY

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

- 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 Sharepoint site.

### 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
2019-06-10	0	Procedure issued

	<b>OPERATIONAL PLAN</b> The Corporation of the Township of Tay (Multi-Facility)	QEMS Proc.: OP-03 Rev Date: 2022-10-07 Rev No: 1 Pages: 1 of 2
<b>COMMITMENT AND ENDORSEMENT</b>		
Reviewed by: Process and Compliance Technician	Approved by: Senior Operations Manager	

## 1. Purpose

To document the endorsement of the Operational Plan for the Corporation of the Township of Tay Drinking Water Systems by OCWA Top Management and the Corporation of the Township of Tay (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 Regional Hub Manager (or designate).

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 change to the description in OP-06 Drinking Water System;
4. The addition of a drinking water subsystem owned by the same Owner to this operational plan.

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

## 4. Related Documents

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



**OPERATIONAL PLAN**  
The Corporation of the Township of Tay  
(Multi-Facility)

QEMS Proc.: OP-03  
Rev Date: 2022-10-07  
Rev No: 1  
Pages: 2 of 2

**COMMITMENT AND ENDORSEMENT**

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

**5. Revision History**

<b>Date</b>	<b>Revision #</b>	<b>Reason for Revision</b>
2021-10-25	0	Procedure issued – Information within OP-03 was originally set out in the main body of OCWA's Operational Plan (last revision 7 dated 2016-06-22). 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). The Owner and Top Management sign-off section is Appendix OP-03A.
2022-10-07	1	Updated header to include the full Owner name, and identified as a multi-facility Operational Plan.



**OPERATIONAL PLAN**  
The Corporation of the Township of Tay  
(Multi-facility)

QEMS Doc: OP-03A  
Rev Date: 2022-10-19  
Rev No: 1  
Pages: 1 of 1

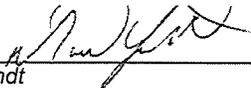
**SIGNED COMMITMENT AND ENDORSEMENT**

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 Township of Tay (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 Rope and Tay Area Drinking Water Systems 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**

  
\_\_\_\_\_  
Mark Yandt  
Senior Operations Manager, Severn  
Sound Hub

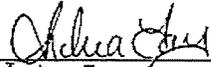
Nov 10/22  
Date

  
\_\_\_\_\_  
Shawn Barriault  
General Manager Operational Services

Nov 4, 2022  
Date

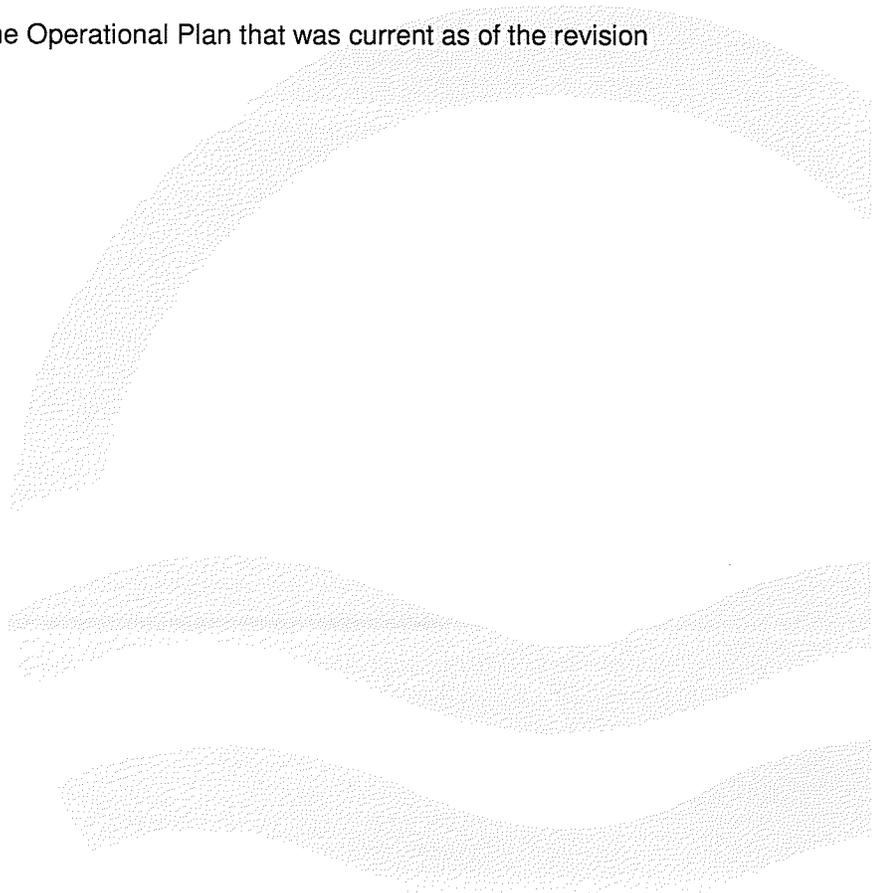
  
\_\_\_\_\_  
Camille Leung  
Safety, Process and Compliance  
Manager, Georgian Highlands Region

Nov 10/22  
Date

  
\_\_\_\_\_  
Andrea Fay  
CAO

Nov 3, 2022  
Date

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





**OPERATIONAL PLAN**  
The Corporation of the Township of Tay  
(Multi-facility)

QEMS Proc.: OP-04  
Rev Date: 2022-10-14  
Rev No: 1  
Pages: 1 of 2

**QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS)  
REPRESENTATIVE**

Reviewed by: Process & Compliance Technician

Approved by: Senior Operations Manager

## 1. Purpose

To identify and describe the specific roles and responsibilities of the QEMS Representative(s) for the Rope and Tay Area Drinking Water Systems.

## 2. Definitions

None

## 3. Procedure

3.1 The role of QEMS Representative for the Corporation of the Township of Tay Drinking Water Systems is the Process and Compliance Technician (PCT). The Safety, Process and Compliance Manager (or alternate PCT) will act as an alternate QEMS Representative when required.

3.2 The QEMS Representative is responsible for:

- Administering the QEMS for the Rope and Tay Area Drinking Water Systems 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
2021-10-25	0	Procedure issued – Information within OP-04 was originally set out in the main body of OCWA's Operational Plan (last revision 7 dated 2016-06-22. 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).



Ontario Clean Water Agency

**OPERATIONAL PLAN**  
The Corporation of the Township of Tay  
(Multi-facility)

QEMS Proc.: OP-04  
Rev Date: 2022-10-14  
Rev No: 1  
Pages: 2 of 2

**QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS)  
REPRESENTATIVE**

Reviewed by: Process & Compliance Technician | Approved by: Senior Operations Manager

Date	Revision #	Reason for Revision
2022-10-14	0	Updated header to address The Corporation of the Township of Tay as a multi-facility operational plan.



**OPERATIONAL PLAN**  
The Corporation of the Township of Tay  
(Multi-facility)

QEMS Proc.: OP-05  
Rev Date: 2022-10-07  
Rev No: 0  
Pages: 1 of 5

**DOCUMENT AND RECORDS CONTROL**

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

## 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 Rope and Tay Area Drinking Water Systems, 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 revision 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 an authorized approval and a header on every page that includes a title, alpha-numeric procedure code, revision date, revision number and page numbers. A revision history is also included in the body of each procedure.

The authorized personnel responsible for the review and approval of this Operational Plan are:

Review	QEMS Representative
Approval	Operations Management and/or Safety, Process and Compliance Manager

	<b>OPERATIONAL PLAN</b> The Corporation of the Township of Tay (Multi-facility)	QEMS Proc.: OP-05 Rev Date: 2022-10-07 Rev No: 0 Pages: 2 of 5
<b>DOCUMENT AND RECORDS CONTROL</b>		
Reviewed by: Process and Compliance Technician	Approved by: Senior Operations Manager	

The QEMS Representative ensures that updated documents are provided to the above authorized personnel for review or approval prior to issuance.

Authorized personnel authenticate their review/approval of this Operational Plan by using a written signature (hard copy), using an electronic signature (electronic copy) or via email.

- 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 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., SCADA, Wonderware, 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.

- 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 and the electronic copy of the document (as applicable) are promptly removed from the applicable designated



**OPERATIONAL PLAN**  
The Corporation of the Township of Tay  
(Multi-facility)

QEMS Proc.: OP-05  
Rev Date: 2022-10-07  
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Pages: 3 of 5

**DOCUMENT AND RECORDS CONTROL**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

document control locations specified in OP-05A. The QEMS Representative ensures that the hardcopy and electronic copy are disposed of or retained (as appropriate).

- 3.8 The authorized method for disposal of hardcopy documents and records after the specified retention requirements have been met is shredding.

The authorized method for disposal of electronic documents and records after the specified retention requirements have been met is deleting.

- 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
Operational Plan (OP-01 to OP-21 and appendices, including Schedule "C" – Subject System Description Form) FEP Long term forecast of major infrastructure maintenance, rehabilitation and renewal activities Sampling plan/schedule/ calendar	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 documents/records listed in OP-05A)	3 years*if no specified legislative requirement identified in this table or in the facility's legal instruments *	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



**OPERATIONAL PLAN**  
The Corporation of the Township of Tay  
(Multi-facility)

QEMS Proc.: OP-05  
Rev Date: 2022-10-07  
Rev No: 0  
Pages: 4 of 5

**DOCUMENT AND RECORDS CONTROL**

Reviewed by: Process and Compliance Technician      Approved by: Senior Operations Manager

Type of Document/Record	Minimum Retention Time	Requirement Reference
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) 15 years (SMR)	O. Reg. 170/03
Flow Meter Calibration Records, Analyzer Calibration Reports Maintenance Records/Work Orders	2 years	O. Reg. 170/03
Records by or created in accordance with the Municipal Drinking Water Licence (MDWL) or Drinking Water Works Permit (DWWP). Except records specifically referenced in O. Reg. 170/03 or otherwise specified in the MDWL or DWWP.	5 years	MDWL
Ministry forms referenced in the DWWP, including Form 1, Form 2, Form 3 and Director Notifications (applies to forms that have been completed by OCWA as the authorized by the owner)	10 years	DWWP

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 policies 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



**OPERATIONAL PLAN**  
The Corporation of the Township of Tay  
(Multi-facility)

QEMS Proc.: OP-05  
Rev Date: 2022-10-07  
Rev No: 0  
Pages: 5 of 5

**DOCUMENT AND RECORDS CONTROL**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

**5. Revision History**

Date	Revision #	Reason for Revision
2022-10-07	0	Procedure issued.



**OPERATIONAL PLAN**  
The Corporation of the Township of Tay  
(Multi-facility)

QEMS Doc: OP-05A  
Rev Date: 2022-10-07  
Rev No: 0  
Pages: 1 of 3

**DOCUMENT AND RECORDS CONTROL LOCATIONS**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

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

Type of Document/Record	Designated Document Control Location (HC = Hardcopy, E = Electronic)
<b>Internal QEMS Documents</b>	
Operational Plan (includes QEMS Procedures)	E – OCWA's Hub Server HC – Rope and Tay Area WTP
QEMS Reference Manual	E – OCWA's Sharepoint site
QEMS Policy	E - OCWA's Sharepoint site and public website HC – Rope and Tay Area WTP
Facility Emergency Plans	E- OCWA's Hub Server HC – Rope and Tay Area WTP
Emergency Response Plan (corporate)	E - OCWA's Sharepoint site
Standard Operating Procedures (referenced in Operational Plan and QEMS Procedures)	E- OCWA's Hub Server HC – Rope and Tay Area WTP
Tay Township Harmful Algal Bloom (HAB) Monitoring, Reporting and Sampling Plan	E- OCWA's Hub Server
Essential Supplies & Services List	E- OCWA's Hub Server HC – Rope and Tay Area WTP
Shift/Vacation Schedule	E- OCWA's Hub Server HC – Victoria Harbour WWTF
On-call Schedule	E- OCWA's Hub Server HC –Victoria Harbour WWTF
Round Sheet Form	E- OCWA's Hub Server HC – Victoria Harbour WWTF
Sampling Schedule/Plan/Calendar	E- OCWA's Hub Server HC – Victoria Harbour WWTF, Tay Area WTP
Chain of Custody Forms	E- OCWA's Hub Server
(Preventive/Corrective) /Summary Table of Action Items (Preventive/Corrective Form)	E- OCWA's Hub Server
CT Calculations	E- OCWA's Hub Server HC – Rope DWS, Tay Area DWS
<b>External QEMS Documents</b>	
Maintenance/equipment manuals	E- OCWA's Hub Server HC – Rope and Tay Area WTP,
Engineering System schematics/plans/drawings/diagrams	E- OCWA's Hub Server HC – Rope and Tay Area WTP



**OPERATIONAL PLAN**  
The Corporation of the Township of Tay  
(Multi-facility)

QEMS Doc: OP-05A  
Rev Date: 2022-10-07  
Rev No: 0  
Pages: 2 of 3

**DOCUMENT AND RECORDS CONTROL LOCATIONS**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

Type of Document/Record	Designated Document Control Location (HC = Hardcopy, E = Electronic)
Municipal Drinking Water License	E- OCWA's Hub Server HC – Rope and Tay Area WTP
Drinking Water Works Permit	E- OCWA's Hub Server HC – Rope and Tay Area WTP
Permit to Take Water	E- OCWA's Hub Server HC – Rope and Tay Area WTP
Operator certificates	E- OCWA's Hub Server HC –Victoria Harbour WWTF
AWWA Standards	E- OCWA's Hub Server
Ontario's Watermain Disinfection Procedure	E – <a href="https://www.ontario.ca">https://www.ontario.ca</a>
DWQMS Standard	E - <a href="https://www.ontario.ca">https://www.ontario.ca</a>
ANSI/NSF product registration documentation for Chemicals/Materials Used	E- OCWA's Hub Server
Applicable federal and provincial legislation and municipal by-laws	Online at <a href="http://www.e-laws.gov.on.ca">www.e-laws.gov.on.ca</a>
Operations Manual	E- OCWA's Hub Server HC – Rope and Tay Area WTP
<b>QEMS Records</b>	
Completed Rounds sheets	E – OCWA'S Hub Server HC – Victoria Harbour WWTF
Facility Operations Logbook(s)	E – <a href="https://ocwa.ericloud.com/">https://ocwa.ericloud.com/</a>
Operator training records	E - maintained in OCWA's Training Summary Database
Maintenance records	E - Maintained in WMS
Internal Calibration records	HC – Victoria Harbour WWTF
External Calibration records	E- OCWA's Hub Server
Chain of Custodies	E- OCWA's Hub Server
Laboratory analyses	E- OCWA's Hub Server
Additional Sampling records	E- OCWA's Hub Server
In-house lab results	HC- Victoria Harbour WWTF E – OCWA hub server, PDM
SCADA records (Wonderware, OCWA)	HC – Tay Area WTP E – Maintained through Wonderware
Internal QEMS audit reports	E- OCWA's Hub Server
External audit reports	E- OCWA's Hub Server
MECP Inspection Reports	E- OCWA's Hub Server



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QEMS Doc: OP-05A  
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**DOCUMENT AND RECORDS CONTROL LOCATIONS**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

<b>Type of Document/Record</b>	<b>Designated Document Control Location</b> (HC = Hardcopy, E = Electronic)
Management Review documentation	E- OCWA's Hub Server
(Preventive/Corrective) / Summary Table of Action Items (Preventive/Corrective records)	E- OCWA's Hub Server
Internal QEMS Communications	E- OCWA's Hub Server
External QEMS Communications (including essential suppliers and service providers)	E- OCWA's Hub Server
Annual Reports	E- OCWA's Hub Server E – Township of Tay Website
Summary Reports for Municipalities	E- OCWA's Hub Server E – Township of Tay Website
AWQI Reports	E- OCWA's Hub Server
Infrastructure review (capital/maintenance works recommendations)	E- OCWA's Hub Server
Community complaint records	E- Performance Reports E- E-logbooks E- WMS
Call In Reports	E- Performance Reports E- E-logbooks E- WMS

**Revision History**

Date	Revision #	Reason for Revision
2022-10-07	0	Appendix issued



**OPERATIONAL PLAN**  
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QEMS Proc.: OP-06  
Rev Date: 2022-10-14  
Rev No: 1  
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**DRINKING WATER SYSTEM**

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

## 1. Purpose

To document the following for the Rope and Tay Area Drinking Water Systems:

- 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 The Rope and Tay Area Drinking Water Systems are owned by the Corporation of the Township of Tay. OCWA is the contracted Operating Authority for the Rope and Tay Area Drinking Water Systems.

3.2 The descriptions of the Rope and Tay Area Drinking Water Systems are outlined in Appendices OP-06A to OP-06F, where:

- OP-06A is Tay Area (Victoria Harbour) Drinking Water System;
- OP-06B is the Rope Drinking Water System.



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**DRINKING WATER SYSTEM**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

3.3 Each description will include the following information:

- Drinking Water System Overview
- Source Water
  - *General Characteristics*
  - *Common Fluctuations*
  - *Threats*
  - *Operational Challenges*
- Treatment System Description
- Treatment System Process Flow Chart
- Description of the Distribution System Components

**4. Related Documents**

Operations & Maintenance Manual  
Severn Sound Source Protection Area Approved Assessment Report  
Site Location Map  
System Schematic

**5. Revision History**

Date	Revision #	Reason for Revision
2021-10-25	0	Procedure issued
2022-10-14	1	Updated header to address the Corporation of the Township of Tay as a multi-facility operational plan.



# OPERATIONAL PLAN

The Corporation of the Township of Tay  
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## DRINKING WATER SYSTEM – TAY AREA DRINKING WATER SYSTEM

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

### Drinking Water System Overview

The Tay Area Drinking Water System (otherwise known as the Victoria Harbour Drinking Water System) is located at 45 Lighthouse Crescent in Victoria Harbour and supplies drinking water to an estimated population of 8,000 persons. Water is supplied through Hogg's Bay within the Georgian Bay, utilizing 3 Booster Stations and 3 Stand Pipes to supply the population. This Drinking Water System is classified as a Class III Water Treatment facility.

### Source Water

#### *General Characteristics*

The source water for the Tay Area Drinking Water System is classified as a surface water treatment plant drawing water from the Georgian Bay. The intake structure is located approximately 140 meters from the shore with a depth of 5 meters. Intake water is fed through a polyethylene pipe extending to the low lift pump and screened wet well.

A pre-chlorination system that is interlocked with the low lift pump is in place for seasonal zebra mussel control when temperatures exceed 16 degree Celsius. The water quality results do not exceed any of Maximum Allowable Concentrations for Organic and Inorganic parameters as outlined by O. Reg 169/03. Turbidity requirements of 0.10 NTU was achieved for 99.0% of the time according to recent data.

#### *Common Fluctuations*

Seasonal fluctuations include storms, spring run-off, algal blooms, and lake turn over. These events are monitored through trending and turbidity analyzers that allow operations staff to alter required coagulant dosing.

#### *Threats*

The Severn Sound Source Protection Area Approved Assessment Report (2015) established significant threats around the Intake Protection Zone including the sewage system (2), fuel storage (3), and storage of dense, non-aqueous phase liquid (1) based upon the intake being relatively close to the shore. There are currently no known active threats to the system intake.

#### *Operational Challenges*

There appears to be no significant operational challenges with respect to the source water for the Tay Area Drinking Water System.

### Treatment System Description

#### *Coagulant Dosing System*

Water enters from the Low Lift Pumps and is injected with Polyaluminum Chloride to aid in the removal of excess organics and colours prior to entering the filter membrane process.

#### *Microza Filter System*

Water is directed through the Microza Filters. The filter removes particulates from the incoming source water.



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**DRINKING WATER SYSTEM – TAY AREA DRINKING WATER SYSTEM**

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

*Granular Activated Carbon Filters*

Water passes through three (3) GAC filters, to aid in the removal of taste, odour and organics.

*Ultraviolet (UV) System*

Primary disinfection is achieved through the use of four (4) Ultraviolet Disinfection Units in line with the pipe gallery in the basement that are monitored for energy output and activity to ensure primary disinfection is met. The UV units are programmed to lock-out when the dosage goes below 40 mJ/cm<sup>2</sup>.

*Chlorine Dosing*

After the water has been passed through a filter and the UV reactors, chlorine is added to the filtrate through the use of Chemical Metering Pumps fed by four 1000L chemical storage tanks.

*Reservoir*

Water is directed towards two 409m<sup>3</sup> below-grade, baffled treated water reservoirs where chlorine Contact Time is achieved. A Treated Chlorine Analyzer monitors free chlorine residual.

*High-Lift Pump Chamber*

Water enters the High-Lift Pump Chamber with a capacity of 80m<sup>3</sup>, where water is directed to the distribution system.

*Stand-by Generator*

A 650 kW stand-by generator, used to supply the works with power during power failures, is situated inside of the Treatment Plant.

*Booster Station – Port McNicoll*

The Port McNicoll Booster Station is located on the southeast corner of the intersection of Talbot Street and Triple Bay Road and houses a re-chlorination system and 4 booster pumps to serve consumers in the Triple Bay and Midland Bay Woods subdivisions. The Booster Station supplies the upper zone of Port McNicoll with water and pressure for fire protection (approximately 360 persons). A 150 kW standby diesel generator provides emergency standby power.

*Booster Station – Waubaushene*

The Waubaushene Booster Station is located within the former Waubaushene Water Treatment Plant located at the base of Pine Street. The facility contains two in-line booster pumps, one duty and one stand-by and acts as a re-chlorination facility. The Booster Station supplies the community of Waubaushene (approximately 1200 persons) with water and pressure for fire protection. A portable generator onsite provides emergency standby power when required.

*Booster Station – Maple Street*

The Maple Street Booster Station is located on 340 Albert Street and houses three booster pumps and a re-chlorination system to provide Victoria Harbour with water and pressure for fire protection. A 150 kW standby diesel generator provides emergency standby power.

**DRINKING WATER SYSTEM – TAY AREA DRINKING WATER SYSTEM**

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

*Waubashene Standpipe*

The Waubashene Standpipe is located at 214 Browns Line with a total storage volume of 1,508m<sup>3</sup>. Water is supplied via the Waubashene Booster Station.

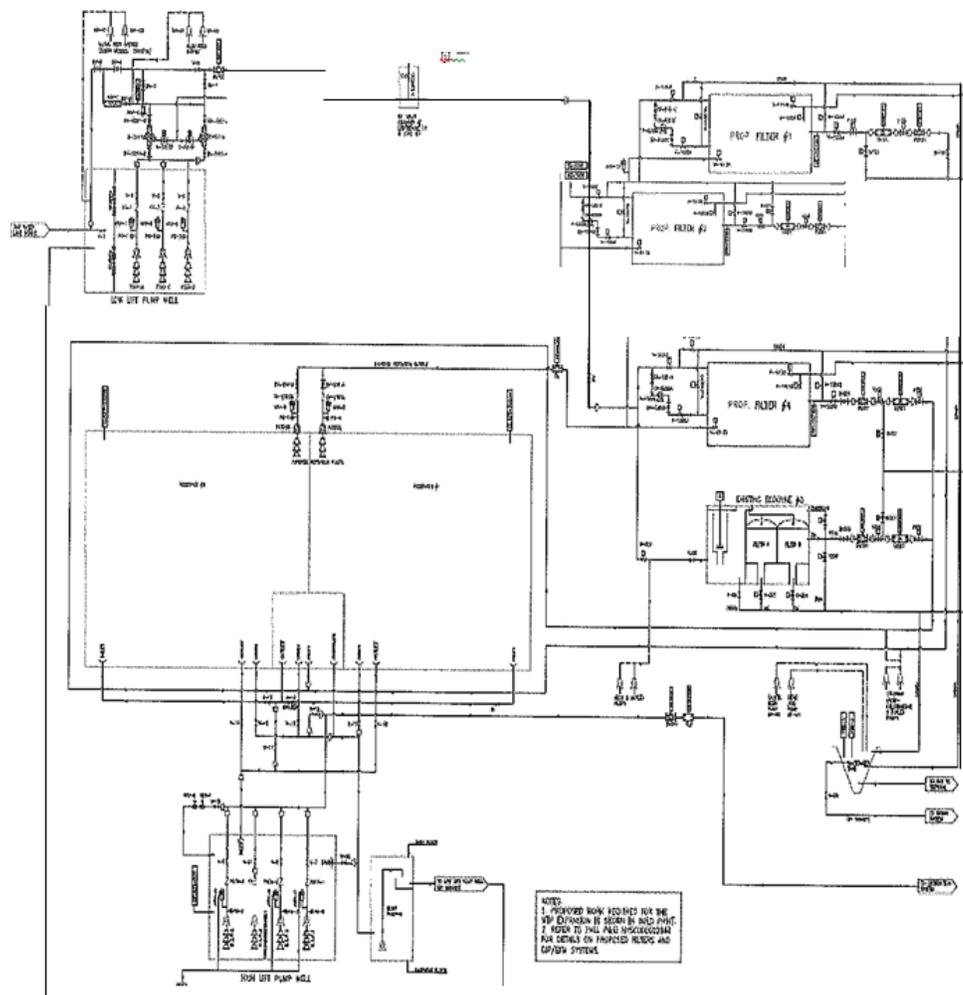
*Port McNicoll Standpipe*

The Port McNicoll Standpipe is located at 464 Simcoe Street with a total storage volume of 2,375m<sup>3</sup>. Water is supplied via the Talbot Street Booster Station.

*Victoria Harbour Standpipe*

The Victoria Harbour Standpipe is located on Jephson Street with a total storage volume of 4,500m<sup>3</sup>. Water is supplied directly from the main Treatment Plant.

**Treatment System Process Flow Chart**





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**DRINKING WATER SYSTEM – TAY AREA DRINKING WATER SYSTEM**

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

**Description of the Distribution System Components**

The Tay Area Drinking Water System is classified as a Class II Water Distribution Subsystem. The distribution system services an estimated population of 8,000 persons, with approximately 2,902 private residences, along with a combined 119 institutional, commercial, and industrial locations. The distribution system is comprised of many various materials including ductile iron, cast iron and polyvinyl chloride. The system consists of 77,966 meters of distribution watermain, 336 hydrants and 400 isolation valves.

**Revision History**

Date	Revision #	Reason for Revision
2021-10-25	0	Procedure issued – Information within OP-06A was originally set out in the Main body and tabs of OCWA’s Operational Plan (last revision 5 dated 2016-06-27). Separated the DWS descriptions from the body of this procedure into Appendices. Changed order of system description to follow the process (e.g., source water first, then treatment, then distribution). Completed all sections: source water, treatment system description, treatment system process flow chart, and description of distribution system components.
2022-10-14	1	Updated header to address the Corporation of the Township of Tay as a multi-facility operational plan, spelling. Removed reference to Ecodyne Filters, no longer in use. Added GAC filters.



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**DRINKING WATER SYSTEM – ROPE DRINKING WATER SYSTEM**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

## Drinking Water System Overview

The Rope Drinking Water System is located on 204 Ruta Road in Waubaushene and supplies drinking water to an estimated population of 91 persons. Water is supplied through Severn Sound within the Georgian Bay. This Drinking Water System is classified as a Class II Water Treatment facility.

## Source Water

### *General Characteristics*

The source water for the Rope Drinking Water System is classified as a surface water treatment plant drawing water from the Georgian Bay. The intake structure is located approximately 460 meters from the shore with a depth of 2.3 meters. Intake water is fed through an intake screen and various piping, being gravity fed to the low lift pump.

A pre-chlorination system that is attached to the intake pipe is in place for seasonal zebra mussel control when temperatures exceed 14 degree Celsius. The water quality results do not exceed any of Maximum Allowable Concentrations for Organic and Inorganic parameters as outlined by O. Reg 169/03. Turbidity requirements of 0.10 NTU was achieved for 99.0% of the time according to recent data.

### *Common Fluctuations*

Seasonal fluctuations include storms, spring run-off, algal blooms, and lake turn over. These events are monitored through trending and turbidity analyzers that allow operations staff to alter required coagulant dosing.

### *Threats*

The Severn Sound Source Protection Area Approved Assessment Report (2015) established significant threats around the Intake Protection Zone including fuel storage (2) based upon the intakes vulnerability to fuel spills. There are currently no known active threats to the system intake.

### *Operational Challenges*

There appears to be no significant operational challenges with respect to the source water for the Tay Area Drinking Water System.

## Treatment System Description

### *Acid Dosing System*

Prior to coagulant dosing, sulfuric acid is injected for pH control if needed.

### *Coagulant Dosing System*

Water enters from the Low Lift Pumps and is injected with Polyaluminum Chloride to remove excess organics and colours prior to entering the filter membrane process.



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**DRINKING WATER SYSTEM – ROPE DRINKING WATER SYSTEM**

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

*ZENON Environmental EC-04 & MDW-4 Filter System*

Water enters a ZENON Environmental enhanced coagulation skid which promotes flocculation of the particulates in the water. Water then passes through the membrane train, where water is filtered through a 0.1 micron membrane to remove particulates.

*Ultraviolet (UV) System*

Primary disinfection is achieved through the use of two (2) Ultraviolet Disinfection Units, one duty and one stand-by, that are monitored for energy output and activity to ensure disinfection is met. The UV units are programmed to lock-out when the dosage goes below 27.5W/cm<sup>2</sup>.

*Chlorine Dosing*

At the end of the UV reactor, chlorine is added to the filtrate through the use of Chemical Metering Pumps fed by a sodium hypochlorite chemical storage tank.

*Reservoir*

Water is directed towards a 50.5m<sup>3</sup> storage reservoir located within the Pump House where Contact Time is met. A Treated Chlorine Analyzer monitors free chlorine residual. High-Lift Pumps direct water to the Distribution System.

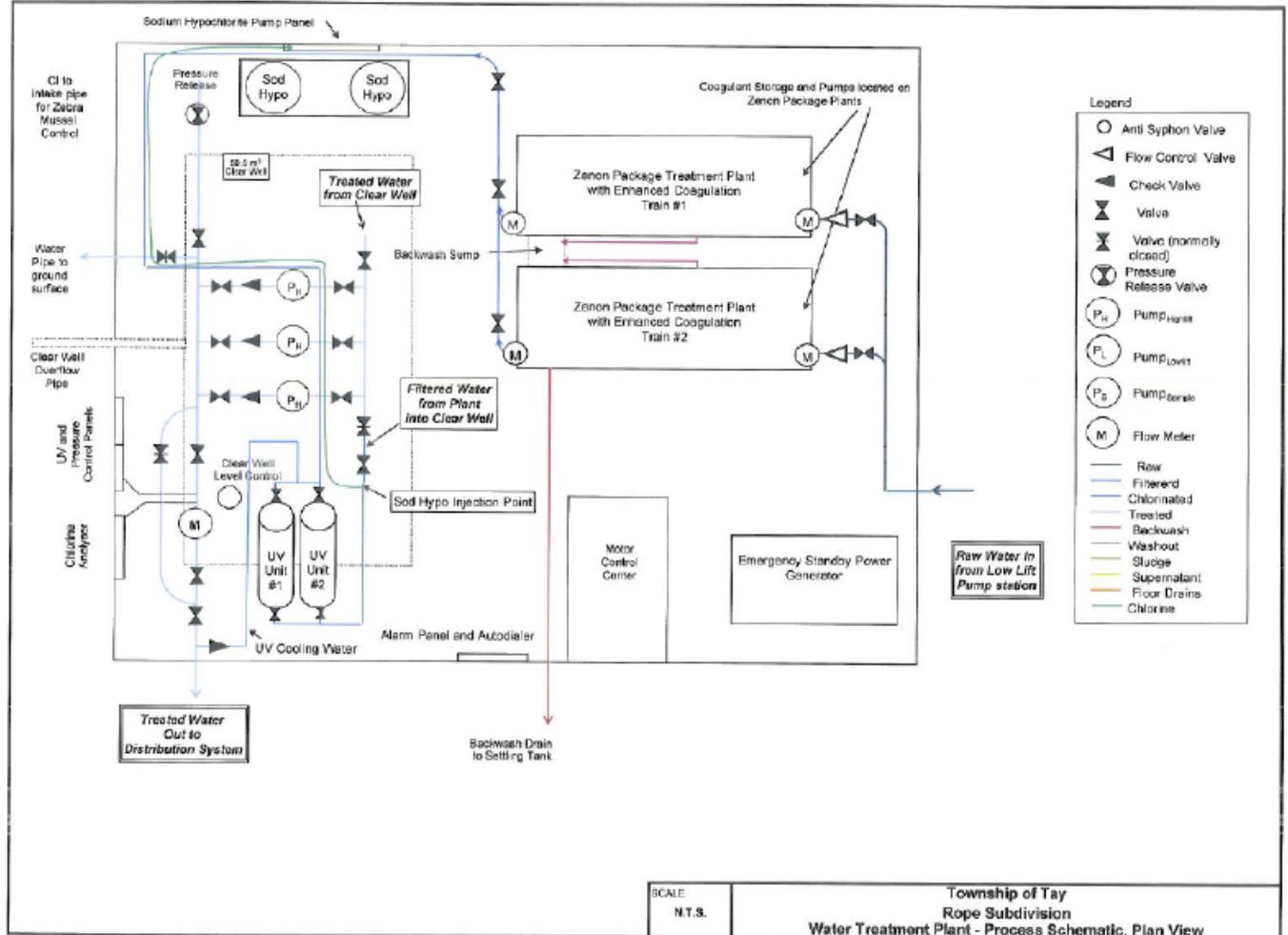
*Stand-by Generator*

An 80 kW stand-by generator, used to supply the works with power during power failures, is situated inside of the Pumphouse.

**DRINKING WATER SYSTEM – ROPE DRINKING WATER SYSTEM**

Reviewed by: Process and Compliance Technician      Approved by: Senior Operations Manager

**Treatment System Process Flow Chart**



**Description of the Distribution System Components**

The Rope Drinking Water System is classified as a Class I Water Distribution Subsystem. The distribution system services an estimated population of 91 persons, with approximately 26 private residences. The distribution system is comprised of 430m of PVC water main, seven main isolation valves, and four hydrants.

**Revision History**

Date	Revision #	Reason for Revision
2021-10-25	0	Procedure issued – Information within OP-06B was originally set out in the Main body and tabs of OCWA’s Operational Plan (last revision 5 dated 2016-06-27). Separated the DWS descriptions from the body of this procedure into Appendices. Changed order of system description to



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**DRINKING WATER SYSTEM – ROPE DRINKING WATER SYSTEM**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

Date	Revision #	Reason for Revision
		follow the process (e.g., source water first, then treatment, then distribution). Completed all sections: source water, treatment system description, treatment system process flow chart, and description of distribution system components.
2022-10-14	1	Updated header to address the Corporation of the Township of Tay as a multi-facility operational plan. Updated coagulant type from Alum to Polyaluminum Chloride.



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QEMS Proc.: OP-07  
Rev Date: 2022-10-14  
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**RISK ASSESSMENT**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

## 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, at least one Operator for the system and at least one member of Operations 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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<b>RISK ASSESSMENT</b>		
Reviewed by: Process and Compliance Technician	Approved by: Senior Operations Manager	

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 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 Ministry’s “Procedure for Disinfection of Drinking Water in Ontario” (as amended) 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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**RISK ASSESSMENT**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

Value	Likelihood of Hazardous Event Occurring
1	<b>Rare</b> – Estimated to occur every 50 years or more (usually no documented occurrence at site)
2	<b>Unlikely</b> – Estimated to occur in the range of 10 – 49 years
3	<b>Possible</b> – Estimated to occur in the range of 1 – 9 years
4	<b>Likely</b> – Occurs monthly to annually
5	<b>Certain</b> – Occurs monthly or more frequently

Value	Consequence of Hazardous Event Occurring
1	<b>Insignificant</b> – Little or no disruption to normal operations, no impact on public health
2	<b>Minor</b> – Significant modification to normal operations but manageable, no impact on public health
3	<b>Moderate</b> – Potentially reportable, corrective action required, potential public health impact, disruption to operations is manageable
4	<b>Major</b> – Reportable, system significantly compromised and abnormal operations if at all, high level of monitoring and corrective action required, threat to public health
5	<b>Catastrophic</b> – 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:
- ✓ The associated hazardous event has a ranking of 12 or greater;
  - ✓ The associated hazardous event can be controlled through control measure(s);
  - ✓ Operation of the control measures can be monitored and corrective actions can be applied in a timely fashion;
  - ✓ Specific control limits can be established for the control measure(s); and
  - ✓ Failure of the control measures would lead to immediate notification of Medical Officer of Health (MOH) or Ministry or both.

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



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**RISK ASSESSMENT**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

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 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
- Changes to the Ministry document “Potential Hazardous Events for Municipal Residential Drinking Water Systems” (as amended)

**4. Related Documents**

OP-08 Risk Assessment Outcomes  
OP-20 Management Review  
Ministry’s “Potential Hazardous Events for Municipal Residential Drinking Water Systems” (as amended)  
Ministry’s “Procedure for Disinfection of Drinking Water in Ontario” (as amended)

**5. Revision History**

Date	Revision #	Reason for Revision
2022-10-14	0	OP-07 Issued



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QEMS Proc.: OP-08  
Rev Date: 2022-10-14  
Rev No: 0  
Pages: 1 of 2

**RISK ASSESSMENT OUTCOMES**

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

## 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 Ministry's "Potential Hazardous Events for Municipal Residential Drinking Water Systems" (as amended) are indicated in the appropriate column using the reference numbers in Table 4 of OP-08A.
- Identified control measures to address the potential hazards and hazardous events; and
- Assigned rankings for the hazardous events (likelihood x consequence = risk value) and whether the hazardous event is a Critical Control Point (CCP) (mandatory or additional).  
Note: If the hazardous event is ranked as 12 or higher and it is not being identified as a CCP, provide rationale as to why it does not meet the criteria set out in section 3.3.7 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**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

- 3.4 A summary of the results of the annual review/36-month risk assessment is recorded in Table 3 of OP-08A.
- 3.5 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
- Ministry’s “Potential Hazardous Events for Municipal Residential Drinking Water Systems” (as amended)

**5. Revision History**

Date	Revision #	Reason for Revision
2022-10-14	0	Procedure issued



## OPERATIONAL PLAN

### Rope Drinking Water System

QEMS Doc.: OP-08A  
 Revision Date: 2022.10.03  
 Ver.#: 2  
 Pages: 1 of 10

### SUMMARY OF RISK ASSESSMENT OUTCOMES

Reviewed by: QEMS Representative

Approved by: Senior Operations Manager

**Table 1:** Risk Assessment Table for Rope Drinking Water System

**Note:** Processes referred to in s.3.3.4 of OP-07 Risk Assessment must be identified as mandatory Critical Control Points (CCP's) as applicable. Mandatory CCP's are not required to be ranked and are indicated with YES\* in the "CCP?" column.

Activity/Process Step	Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Potential Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CPP?
Source Water	1, 2, 9, 12	Algal bloom	Loss of water supply	HAB Monitoring Plan Visual observation, complaints, Shutdown intake processes, Water trucks	3	3	9	<input checked="" type="checkbox"/> No
Source Water	9	Sudden Change to Raw Water Characteristics (e.g. Turbidity, pH)	Reduced Water Supply, Low Chlorine Residual, Difficulty Maintaining Secondary Disinfection	Regular Monitoring of Raw Water Quality, Water trucks	4	2	8	<input checked="" type="checkbox"/> No
Source Water	5	Accident (vehicle / boat) impacting intake	Contamination	Visual observation, complaints, Shutdown intake processes, Water trucks	1	3	3	<input checked="" type="checkbox"/> No
Source Water	2	Strainer Failure	Loss of Water Supply	Scheduled Maintenance, Water trucks	3	2	6	<input checked="" type="checkbox"/> No
Source Water	2, 4	Blocked intake (zebra mussels, frazil ice)	Loss of water supply	Yearly inspections, Physical removal of zebra mussels, Visual observation, Shutdown intake processes, Water trucks	1	4	4	<input checked="" type="checkbox"/> No



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Approved by: Senior Operations Manager

Activity/Process Step	Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Potential Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CPP?
Source Water	2	Trunk Main Breakage	Loss of Water	Repair, Valves, Water trucks	2	4	8	<input checked="" type="checkbox"/> No
Source Water	1, 3	Extreme weather and snowmelt runoff	Contamination	Sampling, Turbidity monitoring, Lower production rate – slow intake, Water trucks	5	2	10	<input checked="" type="checkbox"/> No
Intake/Low Lift Pump	2	Intake collapse or breakage	Loss of water supply	Annual inspection of intake, Preventive maintenance, Continuous monitoring, Alarms, Water trucks	1	5	5	<input checked="" type="checkbox"/> No
Intake/Low Lift Pump	2	Low lift pump station failure	Loss of inflow	Redundancy (two pumps), Manual operation or control, Continuous monitoring, Alarms	2	3	6	<input checked="" type="checkbox"/> No
Intake/Low Lift Pump	2	Raw water flow meter failure	Loss of water supply	Auto shutdown Continuous monitoring, Alarms, Operational checks, Visual observation, Water trucks	3	2	6	<input checked="" type="checkbox"/> No
Coagulation/Flocculation	9, 10	Coagulant / flocculation system failure	Loss of flow Loss of Dosage Ineffective UVT	Slow production rate, PM, Continuous monitoring, Alarms, Operational checks, Visual observation.	3	3	9	<input checked="" type="checkbox"/> No
Filtration	10	Membrane filtration failure (broken fibres and fouling)	Ineffective filtration	Manual repair, Test membranes' integrity	X	X	X	YES*



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Activity/Process Step	Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Potential Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CPP?
Primary Disinfection	9, 10, 11	Primary disinfection system failure (CT-related: flow, level, chlorine)	Loss or low chlorine residual	Auto shutdown, Manual operation, Preventive maintenance, Continuous monitoring, Alarms	X	X	X	YES*
Primary Disinfection	10, 11	Chemical Feed Pump Failure	Loss of Disinfection	Spare Parts, Redundancy (two trains), Inspections, PM, Alarms	X	X	X	YES*
Primary Disinfection	10, 11	Filter effluent Turbidity Meter failure	Unknown quality of disinfection	Alarms, Redundancy (two filters, two turbidity meters) spare parts, handheld readings, PM, Inspections, Calibrations, Stop filter	X	X	X	YES*
Primary Disinfection	10, 11	Chlorine analyzer failure	Unknown quality of disinfection	Alarm, Spare Parts, Calibrations, Handheld Readings, Inspections	X	X	X	YES*
Primary Disinfection	10, 11	Low supply of chemical	Low chlorine residual Inadequate inactivation of pathogens	Operator Checks, Multiple suppliers, Low level alarm	X	X	X	YES*
Primary Disinfection	10, 11	Chemical Leak	Low Chlorine, H&S Hazard, Equipment Corrosion	Operator checks, routine maintenance, inspections, Spill containment, Low Chlorine Alarms	3	2	6	<input checked="" type="checkbox"/> No



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Activity/Process Step	Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Potential Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CPP?
Primary Disinfection	10,11	Infiltration of Clearwell	Potentially not meeting primary disinfection	Monitoring, Increase Chlorine Dosage, Water Supply trucks	2	4	8	<input checked="" type="checkbox"/> No
Primary Disinfection	10	Primary disinfection (UV) – lamp failure, fouling	Unable to meet primary disinfection requirements	Auto shutdown, Manual operation, Redundancy (2 UV), Spare parts, bulbs, Contracted support, Preventive maintenance, Continuous monitoring, Alarms	<del>X</del>	<del>X</del>	<del>X</del>	YES*
Primary Disinfection	3, 9, 10	High turbidity	Ineffective disinfection	Preventive maintenance, Sampling, Continuous monitoring, Alarms	<del>X</del>	<del>X</del>	<del>X</del>	YES*
Distribution	2, 7	High lift pump failure	Loss of water supply Loss of pressure	Redundancy (three pumps), auto switchover capability, Manual operation, Continuous monitoring, Alarms	2	2	4	<input checked="" type="checkbox"/> No
Distribution	5, 7, 8	Cross-connection (backflow)	Contamination from backflow Loss of chlorine residuals	Backflow prevention by-law (for ICI), Building code requires backflow prevention for new builds, Sampling, Operational checks, Complaints	2	4	8	<input checked="" type="checkbox"/> No



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Activity/Process Step	Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Potential Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CPP?
Distribution	2, 4, 7, 8	Watermain breaks	Loss of water supply Loss of pressure Contamination	PM, Spare parts, Valves to isolate, Watermain break response SOP, SCADA monitoring (flow production), Complaints, Water trucks	3	3	9	<input checked="" type="checkbox"/> No
Distribution	4	Service breaks	System leaks	Respond to service leaks, observations, complaints	4	1	4	<input checked="" type="checkbox"/> No
Distribution	4, 11	Dead ends, water age, low flow areas	Loss of chlorine residual / degradation	Manual flushing tasks, flushing procedures, chlorine residual checks	5	4	20	YES*
Distribution	2, 11	Age and water turnover	Loss of chlorine residual Loss of water supply	Continuous monitoring, Water Trucks	4	4	16	YES*
Distribution	8	Municipal Fire	Loss of pressure in areas of distribution	Water Trucks	2	3	6	<input checked="" type="checkbox"/> No
Distribution	1, 2, 4	Extreme temperatures (heat / freeze)	Loss of water supply Loss of chlorine residual	Frozen pipe response – running taps, flushing programs (heat-related), complaints	3	3	9	<input checked="" type="checkbox"/> No
Electrical/Mechanical	2, 3, 4, 7	Loss of power to any equipment	Loss of water supply Loss of pressure	Back-up generators PM's: tested / maintained with fuel supply available, alarms	2	4	8	<input checked="" type="checkbox"/> No
Communications Loss	3, 10, 11	Loss of communications	Loss of monitoring system	Redundancy in communications (Ocwaware	4	2	8	<input checked="" type="checkbox"/> No



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Activity/Process Step	Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Potential Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CPP?
				at Rope WTP), Alarm for loss of communications, Manual monitoring, Spare parts for common breakdown items for network, procedures for resetting modems				
Vandalism/Terrorism	2, 5, 6	Interference with normal operations	Contamination Loss of water supply Cyber security	Locks, passcodes, Firewalls, Alarm systems, IT processes and support, Access Barriers, Data recovery (Historian)	2	4	8	<input checked="" type="checkbox"/> No



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**Table 2:** Identified Critical Control Points (CCP's)

CCP	Critical Control Limits	Monitoring Procedures	Response, Reporting and Recording Procedures
<b>Membrane Filtration</b> (Membrane filtration failure)	8.9kPa on membrane decay	Integrity tests, Regulatory data review (72 hr checks), SCADA alarms	Shutdown process, SOP – Adverse Water Quality & Emergency Notification
<b>Primary/Secondary Disinfection System</b> (CT-related, chemical feed pump failure, chlorine analyzer failure, low supply)	Depends on temperature, pH, flow, chlorine residual, clearwell level Operational limits: - High (alarm): 2.6mg/L - Low (alarm): 0.8mg/L	SCADA: low/high chlorine alarms, continuous monitoring, regulatory data review Daily CT calculation for worst-case scenario	Automatic shutdown 8.1 – Adverse Water Quality & Emergency Notification SOP 8.2 High Free Chlorine SOP 8.3 High Free Chlorine “Alert” SOP 8.4 Low Chlorine Notification SOP Logbook entries
<b>Primary Disinfection (UV)</b>	Regulatory: - 40mJ/cm <sup>2</sup> Operational limits: - Alarm, filter shut down, low lift pump shutdown: 27.5W/cm <sup>2</sup>	SCADA: Low UV alarms, continuous monitoring, filter shutdown, low lift pump shutdown	Automatic shutdown SOP – UV Failure SOP – Adverse Water Quality & Emergency Notification
<b>Filter Effluent Turbidity</b> (filter effluent turbidity meter failure, high turbidity)	Regulatory: - 0.1 NTU 99% of the time - 1 NTU Operational limits: - High (alarm): 0.1 NTU	SCADA: high turbidity alarm, continuous monitoring	Shutdown process 8.1 – Adverse Water Quality & Emergency Notification 8.5 – High Turbidity 8.6 – High Turbidity “Alert”
<b>Distribution Water Free Chlorine Residual</b>	Regulatory limits: 0.05mg/L	Manual residuals taken throughout distribution system	Distribution: Flush until residual is representative of the area 8.1 – Adverse Water Quality & Emergency Notification

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



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

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

Date of Activity	Type of Activity	Participants	Summary of Results
2021-09-24	36-Month Risk Assessment	Paul LaChapelle, Joel Wilson, Mike Mortimer, Brigitte Roth (Acclaims Env)	<p>Conducted this 36-month assessment using OCWA's standard procedures, rating schemes, tables and format. All activities / process steps were discussed line-by-line, cross-referencing the previous Tay Area and Rope DWS risk assessment outcomes to ensure all items are captured as well as changes in risks and conditions experienced in the recent year.</p> <p>Likelihood ratings considered the reliability and redundancy of equipment.</p>
2022-09-26	Calendar year review	Paul LaChapelle, Mark Yandt, Ryan Matchett, Joel Wilson, Camille Leung, Lauren Orlovski	Conducted this calendar year review assessment and differentiated between Tay Area DWS and Rope DWS, confirmed CCP's, minor revisions, and reviewed to confirm cyber security threats.
	Calendar year review		
	36-Month Risk Assessment		



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**Table 4:** Potential Hazardous Event/Hazard Reference Numbers (based on Ministry’s “Potential Hazardous Events for Municipal Residential Drinking Water Systems” dated April 2022)

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

System Type (indicate all that apply to this DWS)		Reference Number	Description of Hazardous Event / Hazard
X	All Systems	1	Long Term Impacts of Climate Change
X	All Systems	2	Water supply shortfall
X	All Systems	3	Extreme weather events (e.g., tornado, ice storm)
X	All Systems	4	Sustained extreme temperatures (e.g., heat wave, deep freeze)
X	All Systems	5	Chemical spill impacting source water
X	All Systems	6	Terrorist and vandalism actions
X	Distribution Systems	7	Sustained pressure loss
X	Distribution Systems	8	Backflow
X	Treatment Systems	9	Sudden changes to raw water characteristics (e.g., turbidity, pH)
X	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)
X	Treatment Systems using Surface Water	12	Algal blooms



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**Revision History**

<b>Date</b>	<b>Revision #</b>	<b>Reason for Revision</b>
2021-09-24	0	36-month risk assessment in this updated format. The previous risk assessment record is replaced with Table 1, and added Tables 2, 3, 4 to form part of this document.
2022-09-26	1	Updated in response to risk assessment review. Updated Table 1 to separate between Tay Area DWS and Rope DWS, addition of Strainer Failure, Trunk Main Breakage, Chemical Feed Pump Failure, Filter Effluent Turbidity Failure, Chlorine Analyzer Failure, Low Supply of Chemical, Chemical Leak, Infiltration of Clearwell, and Municipal Fire. Confirmed cyber security threats. Updated Table 2 CCP's.



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**Table 1:** Risk Assessment Table for Tay Area Drinking Water System

**Note:** Processes referred to in s.3.3.4 of OP-07 Risk Assessment must be identified as mandatory Critical Control Points (CCP's) as applicable. Mandatory CCP's are not required to be ranked and are indicated with YES\* in the "CCP?" column.

Activity/Process Step	Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Potential Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
Source Water	1, 2, 9, 12	Algal bloom	Loss of water supply	HAB Monitoring Plan, Visual observation, Complaints, Shutdown intake processes, Storage, Water Trucks	3	3	9	<input checked="" type="checkbox"/> No
Source Water	9	Sudden Change to Raw Water Characteristics (e.g. Turbidity, pH)	Reduced Water Supply, Low Chlorine Residual, Difficulty Maintaining Secondary Disinfection	Regular Monitoring of Raw Water Quality, Storage, Water Trucks	4	2	8	<input checked="" type="checkbox"/> No
Source Water	5	Accident (vehicle / boat) impacting intake	Contamination	Visual observation, Complaints, Shutdown intake processes, Storage, Water Trucks	1	3	3	<input checked="" type="checkbox"/> No
Source Water	2	Strainer Failure	Loss of Water Supply	Redundancy (Back-Up Strainer), Alarms, Scheduled Maintenance	3	2	6	<input checked="" type="checkbox"/> No
Source Water	2, 4	Blocked intake (zebra mussels, frazil ice)	Loss of water supply	Yearly inspections, Physical removal of zebra mussels, Visual	1	4	4	<input checked="" type="checkbox"/> No



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Activity/Process Step	Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Potential Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CPP?
				observation, Shutdown intake processes, Storage, Water Trucks				
Source Water	2	Trunk Main Breakage	Loss of Water	Repair, Valves, Storage, Water Trucks	2	4	8	<input checked="" type="checkbox"/> No
Source Water	1, 3	Extreme weather and snowmelt runoff	Contamination	Sampling, Turbidity monitoring, Lower production rate – slow intake	5	2	10	<input checked="" type="checkbox"/> No
Intake/Low Lift Pump	2	Intake collapse or breakage	Loss of water supply	Annual inspection of intake, Preventative maintenance, Continuous monitoring, Alarms	1	5	5	<input checked="" type="checkbox"/> No
Intake/Low Lift Pump	2	Low lift pump station failure	Loss of inflow	Redundancy (three pumps), Automated switchover capability, Manual operation or control, Continuous monitoring, Alarms	2	3	6	<input checked="" type="checkbox"/> No
Intake/Low Lift Pump	2	Raw water flow meter failure	Loss of water supply	Spare flow meter, Auto shutdown, Continuous monitoring, Alarms, Operational checks, Visual observation	3	2	6	<input checked="" type="checkbox"/> No



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Coagulation/Flocculation	9, 10	Coagulant / flocculation system failure	Loss of flow Loss of Dosage Ineffective UVT	Slow production rate, Redundancy (Dual coagulant pumps), PM, auto switchover, Continuous monitoring, Alarms, Operational checks, visual observation.	3	3	9	<input checked="" type="checkbox"/> No
Filtration	10	Membrane filtration failure (broken fibres and fouling)	Ineffective filtration	Automatic cleaning, manual repair, Test membranes' integrity	<del>X</del>	<del>X</del>	<del>X</del>	YES*
Primary Disinfection	9, 10, 11	Primary disinfection system failure (CT-related: flow, level, chlorine)	Loss or low chorine residual	Auto shutdown, Manual operation, Preventive maintenance, Continuous monitoring, Alarms	<del>X</del>	<del>X</del>	<del>X</del>	YES*
Primary Disinfection	10, 11	Chemical Feed Pump Failure	Loss of Disinfection	Spare Parts, Two Pumps, Inspections, PM, Alarms	<del>X</del>	<del>X</del>	<del>X</del>	YES*
Primary Disinfection	10, 11	Filter effluent Turbidity Meter failure	Unknown quality of disinfection	Alarms, spare parts, handheld readings, PM, Inspections, Calibrations Stop filter	<del>X</del>	<del>X</del>	<del>X</del>	YES*
Primary Disinfection	10, 11	Chlorine analyzer failure	Unknown quality of disinfection	Alarm, Spare Parts, Calibrations, Handheld Readings, Inspections	<del>X</del>	<del>X</del>	<del>X</del>	YES*
Primary Disinfection	10, 11	Low supply of chemical	Low chlorine residual, Inadequate	Operator Checks, Multiple suppliers, Low level alarm	<del>X</del>	<del>X</del>	<del>X</del>	YES*



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			inactivation of pathogens		<del>X</del>	<del>X</del>	<del>X</del>	
Primary Disinfection	10, 11	Chemical Leak	Low Chlorine, H&S Hazard, Equipment Corrosion	Operator checks, routine maintenance, inspections, Spill containment, Low Chlorine Alarms	3	2	6	<input checked="" type="checkbox"/> No
Primary Disinfection	10,11	Infiltration of Clearwell	Potentially not meeting primary disinfection	Redundancy (multiple clearwells), Monitoring, Increase Chlorine Dosage, Raised clearwell hatches, Supply from Tower, Water Supply Trucks	2	4	8	<input checked="" type="checkbox"/> No
Primary Disinfection	10	Primary disinfection (UV) – lamp failure, fouling	Unable to meet primary disinfection requirements	Auto shutdown, Manual operation, Redundancy (4 Filters), Spare parts, bulbs, Contracted support, Preventive maintenance, Continuous monitoring, Alarms	<del>X</del>	<del>X</del>	<del>X</del>	YES*
Primary Disinfection	3, 9, 10	High turbidity	Ineffective disinfection	Preventive maintenance, Sampling, Continuous monitoring, Alarms	<del>X</del>	<del>X</del>	<del>X</del>	YES*
Distribution	2, 7	High lift pump failure	Loss of water supply Loss of pressure	Redundancy (three pumps), auto switchover capability, manual	2	2	4	<input checked="" type="checkbox"/> No



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				operation, Continuous monitoring, Alarms				
Distribution	5, 7, 8	Cross-connection (backflow)	Contamination from backflow Loss of chlorine residuals	Backflow prevention by-law (for ICI), Building code requires backflow prevention for new builds, Sampling, operational checks, complaints	2	4	8	<input checked="" type="checkbox"/> No
Distribution	2, 4, 7, 8	Watermain breaks	Loss of water supply Loss of pressure Contamination	PM, spare parts, Valves to isolate, Storage in reservoirs, Watermain break response SOP, SCADA monitoring (flow production), Complaints	3	3	9	<input checked="" type="checkbox"/> No
Distribution	4	Service breaks	System leaks	Respond to service leaks, observations, complaints	4	1	4	<input checked="" type="checkbox"/> No
Distribution	4, 11	Dead ends, water age, low flow areas	Loss of chlorine residual / degradation	Automatic flushers, manual flushing tasks, flushing procedures, chlorine residual checks	5	4	20	YES*
Distribution	2, 4	Loss of storage capacity	Loss of water supply Loss of chlorine residual	Continuous monitoring, alarms; By-pass reservoirs with continuous production; Isolate reservoirs and maintain system pressures	4	4	16	YES*



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				using high lift or booster pumps				
Distribution	2, 11	Age and water turnover	Loss of chlorine residual Loss of water supply	Continuous monitoring, set points (draining and filling tower)	4	4	16	YES*
Distribution	7, 8	Booster station failures	Loss of pressure, flow and residual	Redundancies (three pumps, two at waubashene), monitoring, alarms, operational checks, two chlorine pumps at each station, back-up power	3	3	9	<input checked="" type="checkbox"/> No
Distribution	8	Municipal Fire	Loss of pressure in areas of distribution	Increase plant flow, Storage, Increase high lift demand, Pump Redundancy	2	3	6	<input checked="" type="checkbox"/> No
Distribution	1, 2, 4	Extreme temperatures (heat / freeze)	Loss of water supply Loss of chlorine residual	Frozen pipe response – running taps, flushing programs (heat-related), complaints	3	3	9	<input checked="" type="checkbox"/> No
Electrical/Mechanical	2, 3, 4, 7	Loss of power to any equipment	Loss of water supply Loss of pressure	Back-up generators PM's: tested / maintained with fuel supply available, alarms	2	4	8	<input checked="" type="checkbox"/> No
Communications Loss	3, 10, 11	Loss of communications	Loss of monitoring system	Redundancy in communications (Tay	4	2	8	<input checked="" type="checkbox"/> No



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				WTP), alarm for loss of communications, Manual monitoring, Spare parts for common breakdown items for network, procedures for resetting modems,				
Vandalism/Terrorism	2, 5, 6	Interference with normal operations	Contamination Loss of water supply Cyber security	Locks, passcodes, Firewalls, Alarm systems, IT processes and support, Access Barriers, Data recovery (Historian)	2	4	8	<input checked="" type="checkbox"/> No



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**Table 2:** Identified Critical Control Points (CCP's)

CCP	Critical Control Limits	Monitoring Procedures	Response, Reporting and Recording Procedures
<b>Membrane Filtration</b> (Membrane filtration failure)	5.6kPa on membrane decay	Integrity tests, Regulatory data review (72 hr checks), SCADA alarms	Bubble test to locate compromised strands, re-test, shutdown process, SOP – Adverse Water Quality & Emergency Notification
<b>Primary/Secondary Disinfection System</b> (CT-related, chemical feed pump failure, chlorine analyzer failure, low supply)	Depends on temperature, pH, flow, chlorine residual, clearwell level Operational limits: <ul style="list-style-type: none"> <li>- High-High (high-lift pump lock out): 2.1mg/L</li> <li>- High (alarm): 2.0mg/L</li> <li>- Low (alarm): 1.0mg/L</li> <li>- Low-Low (high-lift pump lock out): 0.95mg/L</li> </ul>	SCADA: low/high chlorine alarms, continuous monitoring, regulatory data review Daily CT calculation for worst-case scenario	Automatic shutdown 8.1 – Adverse Water Quality & Emergency Notification SOP 8.2 High Free Chlorine SOP 8.3 High Free Chlorine “Alert” SOP 8.4 Low Chlorine Notification SOP Logbook entries
<b>Primary Disinfection</b> (UV)	Regulatory: <ul style="list-style-type: none"> <li>- 40mJ/cm<sup>2</sup></li> </ul> Operational limits: <ul style="list-style-type: none"> <li>- Low (alarm): 40mJ/cm<sup>2</sup> (below 45mJ/cm<sup>2</sup> for 45 seconds – UV shutdown, filter shutdown)</li> </ul>	SCADA: UV failure alarm, continuous monitoring, UV shutdown, filter shut down after UV shutdown	Automatic shutdown SOP – UV Failure SOP – Adverse Water Quality & Emergency Notification
<b>Filter Effluent Turbidity</b> (filter effluent turbidity meter failure, high turbidity)	Regulatory: <ul style="list-style-type: none"> <li>- 0.1 NTU 99% of the time</li> <li>- 1 NTU</li> </ul> Operational limits:	SCADA: turbidity alarm, continuous monitoring Automatic filter shutdown	Shutdown process 8.1 – Adverse Water Quality & Emergency Notification 8.5 – High Turbidity 8.6 – High Turbidity “Alert”



## OPERATIONAL PLAN

### Tay Area Drinking Water System

QEMS Doc.: OP-08B  
 Revision Date: 2022.10.03  
 Ver.#: 2  
 Pages: 9 of 12

### SUMMARY OF RISK ASSESSMENT OUTCOMES

Reviewed by: QEMS Representative

Approved by: Senior Operations Manager

	<ul style="list-style-type: none"> <li>- High-High: 0.4 NTU (filter shut down after 60 seconds)</li> <li>- High: 0.2 NTU (alarm)</li> </ul>		
<b>Clearwell</b>	<p>Operational limits:</p> <ul style="list-style-type: none"> <li>- High-High: 3.0m</li> <li>- High (alarm): 2.9m.</li> <li>- Low (alarm): 1.8m</li> <li>- Low-Low: 1.7m</li> </ul> <p>Lock-out high-lift pump at 2.0m</p>	SCADA: low/high alarm, lockout high-lift pump	Automatic shutdown
<b>Distribution/Secondary Disinfection Free Chlorine Residual</b> (standpipe, distribution system)	<p>Regulatory limits: 0.05mg/L</p> <p>Operational Limits (distribution):</p> <ul style="list-style-type: none"> <li>- 0.2mg/L</li> </ul> <p>Booster Station Operational Limits:</p> <ul style="list-style-type: none"> <li>- High (alarm): 2.0mg/L</li> <li>- Low (alarm): 0.70mg/L</li> </ul>	<p>Manual pre-rechlorination chlorine reading</p> <p>SCADA: low/high alarm</p> <p>SCADA at booster stations, alarms and data logging</p> <p>Manual residuals taken throughout distribution system</p>	<p>Standpipe: manual chlorination at top access hatch</p> <p>Distribution: Flush until residual is representative of the area</p> <p>8.1 – Adverse Water Quality &amp; Emergency Notification</p> <p>8.4 Low Chlorine Notification</p>

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



**OPERATIONAL PLAN**  
**Tay Area Drinking Water System**

QEMS Doc.: OP-08B  
Revision Date: 2022.10.03  
Ver.#: 2  
Pages: 10 of 12

**SUMMARY OF RISK ASSESSMENT OUTCOMES**

Reviewed by: QEMS Representative

Approved by: Senior Operations Manager

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

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

Date of Activity	Type of Activity	Participants	Summary of Results
2021-09-24	36-Month Risk Assessment	Paul LaChapelle, Joel Wilson, Mike Mortimer, Brigitte Roth (Acclaims Env)	<p>Conducted this 36-month assessment using OCWA's standard procedures, rating schemes, tables and format. All activities / process steps were discussed line-by-line, cross-referencing the previous Tay Area and Rope DWS risk assessment outcomes to ensure all items are captured as well as changes in risks and conditions experienced in the recent year.</p> <p>Likelihood ratings considered the reliability and redundancy of equipment.</p>
2022-09-26	Calendar year review	Paul LaChapelle, Mark Yandt, Ryan Matchett, Joel Wilson, Camille Leung, Lauren Orlovski	Conducted this calendar year review assessment and differentiated between Tay Area DWS and Rope DWS, confirmed CCP's, minor revisions, and reviewed to confirm cyber security threats.
	Calendar year review		
	36-Month Risk Assessment		



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**Tay Area Drinking Water System**

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**SUMMARY OF RISK ASSESSMENT OUTCOMES**

Reviewed by: QEMS Representative

Approved by: Senior Operations Manager

**Table 4:** Potential Hazardous Event/Hazard Reference Numbers (based on Ministry’s “Potential Hazardous Events for Municipal Residential Drinking Water Systems” dated April 2022)

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

System Type (indicate all that apply to this DWS)		Reference Number	Description of Hazardous Event / Hazard
X	All Systems	1	Long Term Impacts of Climate Change
X	All Systems	2	Water supply shortfall
X	All Systems	3	Extreme weather events (e.g., tornado, ice storm)
X	All Systems	4	Sustained extreme temperatures (e.g., heat wave, deep freeze)
X	All Systems	5	Chemical spill impacting source water
X	All Systems	6	Terrorist and vandalism actions
X	Distribution Systems	7	Sustained pressure loss
X	Distribution Systems	8	Backflow
X	Treatment Systems	9	Sudden changes to raw water characteristics (e.g., turbidity, pH)
X	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)
X	Treatment Systems using Surface Water	12	Algal blooms



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**SUMMARY OF RISK ASSESSMENT OUTCOMES**

Reviewed by: QEMS Representative

Approved by: Senior Operations Manager

**Revision History**

<b>Date</b>	<b>Revision #</b>	<b>Reason for Revision</b>
2021-09-24	0	36-month risk assessment in this updated format. The previous risk assessment record is replaced with Table 1, and added Tables 2, 3, 4 to form part of this document.
2022-09-26	1	Updated in response to risk assessment review. Updated Table 1 to separate between Tay Area DWS and Rope DWS, addition of Strainer Failure, Trunk Main Breakage, Chemical Feed Pump Failure, Filter Effluent Turbidity Failure, Chlorine Analyzer Failure, Low Supply of Chemical, Chemical Leak, Infiltration of Clearwell, and Municipal Fire. Confirmed cyber security threats. Updated Table 2 CCP's.



Ontario Clean Water Agency

# OPERATIONAL PLAN

The Corporation of the Township of Tay  
(Multi-facility)

QEMS Proc.: OP-09  
Rev Date: 2022-10-14  
Rev No: 1  
Pages: 1 of 7

## ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES

Reviewed by: Process & Compliance Technician

Approved by: Senior Operations Manager

### 1. Purpose

To document the following for the Rope and Tay Area Drinking Water Systems:

- 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 Rope and Tay Area Drinking Water Systems are owned by the Corporation of the Township of Tay and is represented by Shawn Barriault, Director of Public Works, and Andrea Fay, CAO.

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

#### 3.2 Top Management

Top Management for the Rope and Tay Area Drinking Water Systems consists of:

- Operations Management – Severn Sound Hub
- Regional Hub Manager – Georgian Highlands Region
- Safety, Process & Compliance Manager – Georgian Highlands Region

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



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## ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES

Reviewed by: Process & Compliance Technician

Approved by: Senior Operations Manager

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



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## ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES

Reviewed by: Process & Compliance Technician

Approved by: Senior Operations Manager

### 3.4 Regional Hub Roles, Responsibilities and Authorities

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 Georgian Highlands Region**

Role	Responsibilities and Authorities
Owner	<ul style="list-style-type: none"> <li>Understanding duty, liability, and standards of care outlined in the "Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils" guide provided by the Government of Ontario</li> <li>Approval of Financial Plans and budgets</li> <li>Operational Plan endorsement</li> <li>Provides Public access to Annual , Summary Reports, and the Operational Plan</li> <li>Provide the Operating Authority information as requested</li> <li>Relay any MECP communications, requirements, and documentation to the Operating Authority</li> <li>Coordinate with the Operating Authority as needed</li> </ul>
All Operations Personnel	<ul style="list-style-type: none"> <li>Perform duties in compliance with applicable legislative and regulatory requirements</li> <li>Be familiar with the QEMS Policy and work in accordance with QEMS programs and procedures</li> <li>Maintain operator certification (as required)</li> <li>Attend/participate in training relevant to their duties under the QEMS</li> <li>Document all operational activities</li> <li>Identify potential hazards at their facility that could affect the environmental and/or public health and report to Operations Management</li> <li>Report and act on all operational incidents</li> <li>Recommend changes to improve the QEMS</li> </ul>
Regional Hub Manager (Top Management)	<ul style="list-style-type: none"> <li>Oversee the administration and delivery of contractual water/wastewater services on a Regional Hub level</li> <li>Fulfill role of Top Management</li> <li>Ensure corporate QEMS programs and procedures are implemented consistently throughout the Regional Hub</li> </ul>



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## ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES

Reviewed by: Process & Compliance Technician

Approved by: Senior Operations Manager

Role	Responsibilities and Authorities
	<ul style="list-style-type: none"> <li>Manages the planning of training programs for Regional Hub</li> <li>Report to VP of Operations/SLT on the regional performance of the QEMS and any need for Agency-wide improvement</li> </ul>
Operations Management (Top Management)	<ul style="list-style-type: none"> <li>Manage the day-to-day operations and maintenance of his/her assigned facilities and supervise facility operational staff</li> <li>Fulfill role of Top Management</li> <li>Ensure corporate and site-specific QEMS programs and procedures are implemented at his/her assigned facilities</li> <li>Determine necessary action and assign resources in response to operational issues</li> <li>Report to the Regional Hub Manager on facility operational performance</li> <li>Ensure operational training is provided for the cluster (in consultation with the SPC Manager as required)</li> <li>Act as Overall Responsible Operator (ORO) when required.</li> </ul>
Safety, Process & Compliance (SPC) Manager (Top Management)	<ul style="list-style-type: none"> <li>Supervise facility compliance staff and provide technical and program support to the Regional Hub related to process control and compliant operations</li> <li>Fulfill role of Top Management</li> <li>Ensure corporate/regional QEMS programs and procedures are implemented consistently throughout the Regional Hub</li> <li>Assist in the development of site-specific operational procedures as required</li> <li>Ensure training on applicable legislative and regulatory requirements and the QEMS is provided for the Regional Hub (in consultation with Operations Management as required)</li> <li>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</li> <li>Act as alternate QEMS Representative (when required)</li> </ul>
Process & Compliance Technician (PCT) / (QEMS Representative)	<ul style="list-style-type: none"> <li>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</li> <li>Fulfill role of QEMS Representative (OP-04)</li> <li>Monitor, evaluate and report on compliance/quality status of his/her assigned facilities</li> <li>Implement facility-specific QEMS programs and procedures consistently at his/her assigned facilities</li> <li>Participate in audits and inspections and assist in developing, implementing and monitoring action items to respond to findings</li> </ul>



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## ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES

Reviewed by: Process & Compliance Technician

Approved by: Senior Operations Manager

Role	Responsibilities and Authorities
	<ul style="list-style-type: none"> <li>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)</li> <li>Communicates to Owners on facility compliance and DWQMS accreditation as directed</li> <li>Deliver/participate in/coordinate training including applicable legislative and regulatory requirements and the QEMS</li> </ul>
Senior Operator/Mechanic	<ul style="list-style-type: none"> <li>Perform duties as assigned by Operations Management</li> <li>Prepare and/or coordinate operational staff work assignments and follow up to ensure completion</li> <li>Assist management in providing recommendations for annual capital forecasts and gathering information for operational reports as required</li> <li>Assist in the preparation of facility manuals and documenting operating processes and procedures for staff</li> <li>Act for management during vacations or periodic absences.</li> <li>Perform duties of Operator/Mechanic as required</li> <li>May act as Operator-in-Charge (OIC) and/or Overall Responsible Operator (ORO) when required.</li> </ul>
Operator/Mechanic	<ul style="list-style-type: none"> <li>Perform duties as assigned by Operations Management or designate</li> <li>Monitor, maintain and operate facilities in accordance with applicable regulations, approvals and established operating procedures</li> <li>Collect samples and perform laboratory tests and equipment calibrations as required</li> <li>Regularly inspect operating equipment, perform routine preventive maintenance and repairs and prepare and complete work orders as assigned</li> <li>Participate in facility inspections and audits</li> <li>May act as Operator-in-Charge (OIC) and/or Overall Responsible Operator (ORO) when required.</li> </ul>
Mechanic/Operator	<ul style="list-style-type: none"> <li>Perform duties as assigned by Operations Management or designate</li> <li>Act as lead with other staff on extensive maintenance/repair projects</li> <li>Schedule and perform maintenance on equipment and processes in accordance with established procedures and record the maintenance data</li> <li>Regularly inspect operating equipment, perform routine preventive maintenance and repairs</li> <li>Perform duties of Operator/Mechanic as required</li> </ul>



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## ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES

Reviewed by: Process & Compliance Technician

Approved by: Senior Operations Manager

Role	Responsibilities and Authorities
	<ul style="list-style-type: none"> <li>• May act as Operator-in-Charge (OIC) and/or Overall Responsible Operator (ORO) when required.</li> </ul>
Instrumentation Technician	<ul style="list-style-type: none"> <li>• Provide advice and technical expertise on the services required for process control and automation systems</li> <li>• Discuss and advise on detailed system and programming requirements, modify existing and new software in response to plant requests, analyze and resolve problems/error conditions, document changes/modifications and configure, install and support related software, hardware and network for such systems</li> <li>• Conduct inspections of the process control and automation systems to validate that all is operating within established parameters as requested</li> <li>• Install and commission new electrical/electronic equipment and automation systems</li> <li>• May act as Operator-in-Charge (OIC) and/or Overall Responsible Operator (ORO) when required.</li> </ul>
Operational and Maintenance (O&M) Team Lead	<ul style="list-style-type: none"> <li>• Perform duties as assigned by Operations Management</li> <li>• Oversee maintenance activities on equipment and process in order to maintain compliance with applicable legislation, regulations, approvals and established operating procedures</li> <li>• Prepare and/or coordinate staff work assignments and follow up to ensure completion</li> <li>• Act for management during vacations or periodic absences.</li> <li>• Develop and provide O&amp;M reports to management and recommend changes in operating procedures/processes to improve facility operations</li> <li>• Assist with facility operations including monitoring facility processes, reviewing process data and trouble-shooting</li> <li>• Assist management in developing annual O&amp;M budgets and provide recommendations relating to potential O&amp;M expenditures</li> <li>• May act as Operator-in-Charge (OIC) and/or Overall Responsible Operator (ORO) when required.</li> </ul>
Administrative Assistant	<ul style="list-style-type: none"> <li>• Support the administrative functions of the regional hub/cluster/facility including coordinating delivery of training as directed</li> <li>• Assist with entering operational data (including operational training records, process data and maintenance records ) into the appropriate database as directed</li> </ul>



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## ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES

Reviewed by: Process & Compliance Technician

Approved by: Senior Operations Manager

### 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

### 5. Revision History

Date	Revision #	Reason for Revision
2021-10-25	0	Procedure issued – Information within OP-09 was originally set out in the main body of OCWA's Operational Plan (last revision 7 dated 2016-06-22). 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'. Incorporated OCWA's new org structure, including SPC Manager. 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. Re-worded QEMS Roles, Responsibilities and Authorities for each position. Added QEMS Roles, Responsibilities and Authorities for Administrative Assistant/Project Clerk.
2022-10-14	1	Updated header to address the Corporation of the Township of Tay as a multi-facility operational plan. Updated CAO.



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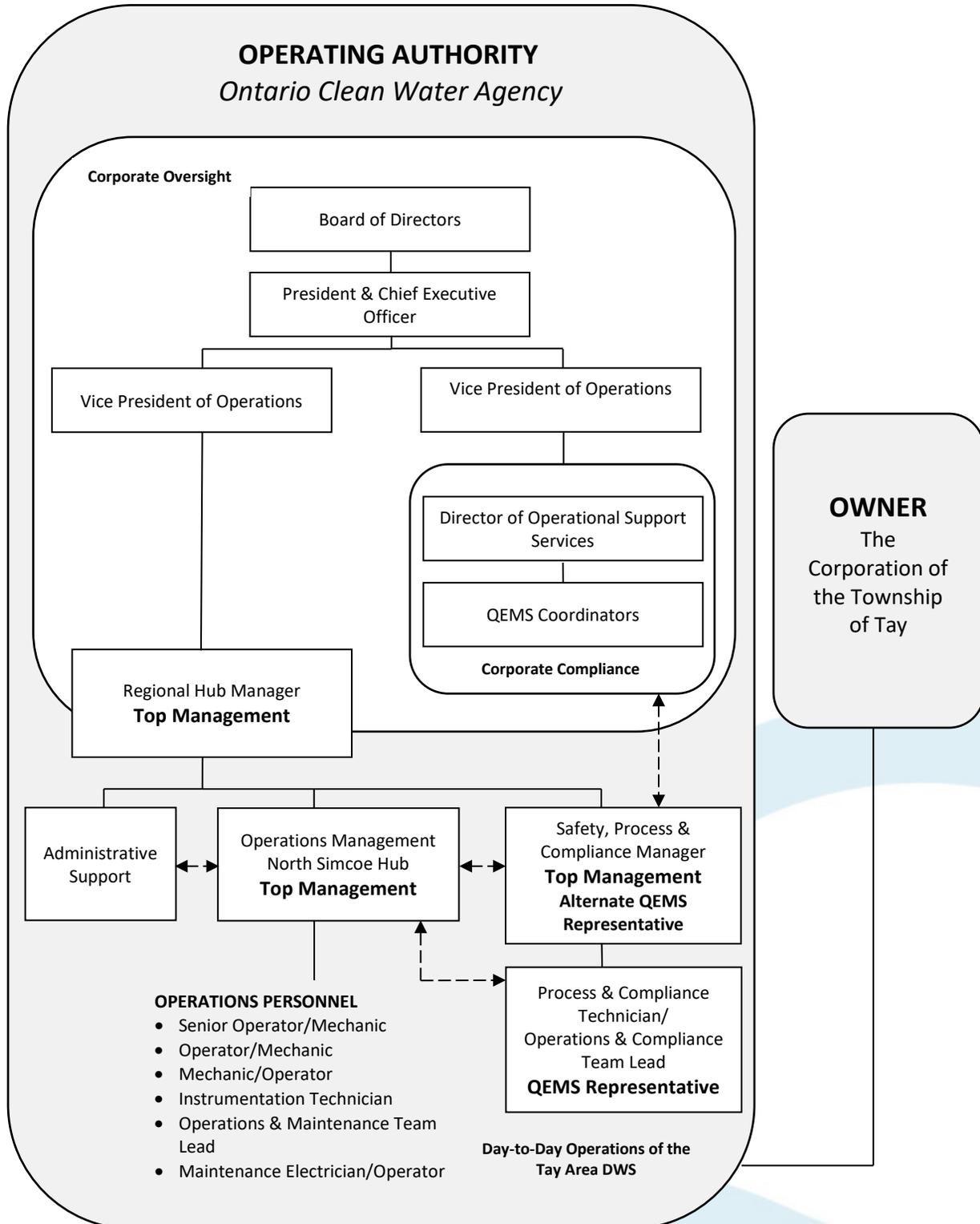
# OPERATIONAL PLAN

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## ORGANIZATIONAL STRUCTURE

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager





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## ORGANIZATIONAL STRUCTURE

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

### Revision History

Date	Revision #	Reason for Revision
2021-10-25	0	Appendix issued.
2022-10-14	1	Updated header to address the Corporation of the Township of Tay as a multi-facility operational plan.



**OPERATIONAL PLAN**  
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**COMPETENCIES**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

**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"> <li>• Valid operator certification; minimum Class I if required to act as ORO</li> <li>• Experience and/or training in managing/supervising drinking water system operations, maintenance, financial planning and administration</li> <li>• Training and/or experience related to drinking water system processes, principles and technologies</li> <li>• Training on OCWA’s QEMS and the DWQMS</li> <li>• Training on relevant legislation, regulations, codes, policies, guidelines and procedures</li> <li>• Experience using computers and operational computerized systems</li> </ul>



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## COMPETENCIES

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

Position	Required Minimum Competencies
Safety, Process & Compliance (SPC) Manager	<ul style="list-style-type: none"> <li>• Valid operator certification; minimum OIT or minimum Class I if required to act as OIC and/or ORO</li> <li>• Experience in providing technical support and leading/managing programs related to process control and compliant operations</li> <li>• Experience and/or training in conducting compliance audits, and management system audits</li> <li>• Experience and/or training in preparing and presenting informational and training material</li> <li>• Training on OCWA's QEMS and the DWQMS</li> <li>• Training on relevant legislation, regulations, codes, policies, guidelines and procedures</li> <li>• Experience using computers and operational computerized systems</li> </ul>
Senior Operator/Mechanic	<ul style="list-style-type: none"> <li>• Valid operator certification; minimum Class I or minimum Class I if required to act as OIC and/or ORO</li> <li>• Experience leading/directing operations personnel, and providing technical guidance to resolve operational issues</li> <li>• Training and experience in inspecting and monitoring drinking water system processes and performing/planning maintenance activities</li> <li>• Training on OCWA's QEMS and the DWQMS</li> <li>• Training on relevant legislation, regulations, codes, policies, guidelines and procedures</li> <li>• Experience using computers and operational computerized systems</li> </ul>
Operator/Mechanic	<ul style="list-style-type: none"> <li>• Valid operator certification; minimum OIT or minimum Class I if required to act as OIC and/or ORO</li> <li>• Training and/or experience in inspecting and monitoring drinking water system processes and performing/planning maintenance activities</li> <li>• Training on OCWA's QEMS and the DWQMS</li> <li>• Training on relevant legislation, regulations, codes, policies, guidelines and procedures</li> <li>• Experience using computers and operational computerized systems</li> </ul>
Mechanic/Operator	<ul style="list-style-type: none"> <li>• Valid operator certification; minimum OIT or minimum Class I if required to act as OIC and/or ORO</li> <li>• Millwright and/or other trades certificates</li> <li>• Experience in maintaining and repairing equipment and structures and in planning and scheduling maintenance and repair tasks</li> <li>• Training and/or experience related to drinking water system processes</li> <li>• Training on OCWA's QEMS and the DWQMS</li> <li>• Training on relevant legislation, regulations, codes, policies, guidelines and procedures</li> </ul>



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**COMPETENCIES**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

Position	Required Minimum Competencies
	<ul style="list-style-type: none"> <li>• Experience using computers and operational computerized systems</li> </ul>
Process & Compliance Technician, Operations and Compliance Team Lead	<ul style="list-style-type: none"> <li>• Valid operator certification; minimum OIT or minimum Class I if required to act as OIC and/or ORO</li> <li>• Experience and/or training in resolving/addressing compliance issues for drinking water systems</li> <li>• Experience and/or training in monitoring, assessing and reporting on facility performance against legal requirements and corporate goals</li> <li>• Experience and/or training in preparing and presenting informational and training material</li> <li>• Experience in conducting management system audits or internal auditor education/training</li> <li>• Training on OCWA's QEMS and the DWQMS</li> <li>• Training on relevant legislation, regulations, codes, policies, guidelines and procedures</li> <li>• Experience using computers and operational computerized systems</li> </ul>
Instrumentation Technician	<ul style="list-style-type: none"> <li>• Valid operator certification; minimum OIT and minimum Class I if required to act as OIC and/or ORO</li> <li>• Experience and/or training in monitoring, programming, installing and troubleshooting network, hardware, software and instrumentation</li> <li>• Experience and/or training in drinking water system processes, design, instrumentation, process control and automation systems</li> <li>• Training on OCWA's QEMS and the DWQMS</li> <li>• Training on relevant legislation, regulations, codes, policies, guidelines and procedures</li> <li>• Experience using computers and operational computerized systems</li> </ul>
O&M Team Lead	<ul style="list-style-type: none"> <li>• Valid operator certification; minimum OIT and minimum Class I if required to act as OIC and/or ORO</li> <li>• One of: Electrical/Electronic/Instrumentation Technician or Technologist Diploma; Mechanical Millwright; Certified Engineering Technician/Technologist designation, or; a valid Engineering or Environmental Technician diploma</li> <li>• Experience and/or training in managing and planning multiple projects, assessing priorities and effectively coordinating operation and maintenance programs</li> <li>• Training and/or experience related to operations and maintenance of drinking water system processes, principles and technologies</li> <li>• Training on OCWA's QEMS and the DWQMS</li> <li>• Training on relevant legislation, regulations, codes, policies, guidelines and procedures</li> </ul>



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**COMPETENCIES**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

Position	Required Minimum Competencies
	<ul style="list-style-type: none"> <li>• Experience using computers and operational computerized systems</li> </ul>
Maintenance Electrician/Operator	<ul style="list-style-type: none"> <li>• Valid operator certification; minimum OIT and minimum Class I if required to act as OIC and/or ORO</li> <li>• Completion of any electrical or electronic training program certified by the Ministry of Advanced Education and Skills Development (formerly the Ministry of Training, Colleges and Universities)</li> <li>• Experience in performing maintenance and repair of electrical and electronic equipment</li> <li>• Training on OCWA's QEMS and the DWQMS</li> <li>• Training on relevant legislation, regulations, codes, policies, guidelines and procedures</li> <li>• Experience using computers and operational computerized systems</li> </ul>

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"> <li>• Experience and/or training related to procurement and business administration practices</li> <li>• Training on OCWA's QEMS and the DWQMS</li> <li>• Training on relevant legislation, regulations, codes, policies, guidelines and procedures</li> <li>• Experience using computers</li> </ul>

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.



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**COMPETENCIES**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

- 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. The purpose of the EC 101 course is to ensure staff are aware of applicable 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.



Ontario Clean Water Agency

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## COMPETENCIES

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

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  
OCWA Training Summary Database

### 5. Revision History

Date	Revision #	Reason for Revision
2022-10-14	0	Procedure issued



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QEMS Proc.: OP-11  
Rev Date: 2022-10-14  
Rev No: 1  
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**PERSONNEL COVERAGE**

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

## 1. Purpose

To describe the procedure for ensuring that sufficient and competent personnel are available for duties that directly affect drinking water quality at the Rope and Tay Area Drinking Water Systems.

## 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 Rope and Tay Area Drinking Water Systems are staffed by OCWA personnel as follows:

7:30 a.m. to 4:00 p.m. Monday to Friday

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.

The Senior Operations Manager designates an overall responsible operator (ORO) for Water Distribution and Supply in the Georgian Highlands Region – Severn Sound Hub. When the ORO is unavailable, the Back-Up ORO is designated as the ORO and is recorded as such in the facility logbook. Refer to the current ORO posting at the facilities. The designated OIC for each shift is recorded in the facility logbook.

3.4 The Senior Operations Manager or designate assigns an on-call Operator based on the on-call schedule for the time that the facility is un-staffed (i.e. evenings, weekends, and Statutory Holidays) to be available for return to work 24/7. The on-call shift change is generally at the end of the business day on the Thursday of each week. The on-call

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\* 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: Process and Compliance Technician | Approved by: Senior Operations Manager

schedule is developed by the Operators that are on-call for this water system and given to the Senior Operations Manager or designate for approval.

- 3.5 The on-call Operator does not conduct a physical inspection of the facility during the weekends. However, during long 3-day weekends due to Statutory Holidays, the on-call Operator does a physical inspection of the facility on Saturday. Details of the inspection are recorded in the facility logbook and daily round sheets.
- 3.6 The 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 text page. The on-call Operator contacts the call-centre to obtain the details of the alarm to determine the appropriate response. If the nature of the alarm requires additional staff, the on-call Operator can request assistance from the Hub Contact or any of the other Certified Operators. The on-call Operator records details of the Call-In in the logbook.
- 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  
Shift/Vacation Schedule  
Critical Shortage of Staff Contingency Plan (Facility Emergency Plan)

#### 5. Revision History

Date	Revision #	Reason for Revision
2021-10-25	0	Procedure issued.
2022-10-14	1	Updated header to address the Corporation of The Township of Tay as a multi-facility operational plan.



# OPERATIONAL PLAN

The Corporation of the Township of Tay

QEMS Proc.: OP-12  
Rev Date: 2022-10-14  
Rev No: 0  
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## COMMUNICATIONS

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

### 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, all staff are required to complete the Environmental Compliance 101 (EC101) 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**

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3.3.3 The Safety, Process and Compliance (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/PCT 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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## COMMUNICATIONS

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

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 the facilities.

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 OCWA's WMS 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

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

## 5. Revision History

Date	Revision #	Reason for Revision
2022-10-14	0	Procedure Issued.



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QEMS Proc.: OP-13  
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**ESSENTIAL SUPPLIES AND SERVICES**

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

## 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 Rope and Tay Area Drinking Water System are contained in the Facility Emergency Plan, Essential Supplies and Services 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 responsible for notifying the MECP of any change to the drinking water testing services being utilized.



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**ESSENTIAL SUPPLIES AND SERVICES**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

- 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 Supplies and Services 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
2021-10-25	0	Procedure issued.
2022-10-14	1	Updated header to address the Corporation of the Township of Tay as a multi-facility operational plan.



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QEMS Proc.: OP-14  
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**REVIEW AND PROVISION OF INFRASTRUCTURE**

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

## 1. Purpose

To describe OCWA's procedure for reviewing the adequacy of infrastructure necessary to operate and maintain the Rope, and Tay Area Drinking Water Systems.

## 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-in reports
- Adverse Water Quality Incidents (AWQIs) or other incidents
- Health & Safety Inspections
- MECP Inspection Reports
- Operational Staff Suggestions

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 multi-year rolling Capital and Major Maintenance Recommendations 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 Capital and Major Maintenance Recommendations 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: Process and Compliance Technician | Approved by: Senior Operations Manager

**4. Related Documents**

Capital and Major Maintenance Recommendations Report & Acknowledgement/Approval from the owner  
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
2022-10-14	0	Procedure issued



# OPERATIONAL PLAN

The Corporation of the Township of Tay  
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QEMS Proc.: OP-15  
Rev Date: 2022-10-14  
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## INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

### 1. Purpose

To describe OCWA's infrastructure maintenance, rehabilitation and renewal program for the Rope and Tay Area Drinking Water Systems.

### 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 (but are not limited to):

- *Inspect, adjust and calibrate process control equipment to ensure proper operation of water treatment and distribution systems, pumps, chemical feeders, and all other equipment installed at the facilities*
- *Perform day-to-day maintenance duties to equipment including checking machinery and electrical equipment when required*
- *Maintain an inventory of all equipment and tools*
- *Maintain accurate records of work conducted, activities, and achievements*

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.



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**INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

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, Operations Management, PCT, and/or applicable operations personnel. Work orders are completed and electronically entered into WMS by the person responsible for completing the task. Records of these activities are maintained as per OP-05 Document and Records Control.

The WMS Primary and 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 acting OIC and/or Operations Management. Unplanned maintenance activities are recorded on corrective work orders and are 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 Capital and Major Maintenance Recommendations Report also provides a long-term (multi-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



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**INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

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, the WMS is set up so the Operations Manager can track the Severn Sound Hub Work Order Status by using the start centre in the WMS for review of work order completion rate. The start centre can track corrective, preventative, capital, and operational work orders as to the number scheduled, closed or in progress of closing for all of the facilities. The completion rate of all work orders is monitored as to the percentage closed and percentage variance.

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 at a minimum of at least once every calendar year through submission of the Capital and Major Maintenance Recommendations Report and through the results of the Management Review.

**4. Related Documents**

- Minutes of Management Review
- Capital and Major Maintenance Recommendations Report & Acknowledgement/Approval from the Owner
- OP-05 Document and Records Control
- OP-14 Review and Provision of Infrastructure

**5. Revision History**

Date	Revision #	Reason for Revision
2022-10-14	0	Procedure issued



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The Corporation of the Township of Tay  
(Multi-facility)

QEMS Proc.: OP-16  
Rev Date: 2022-10-14  
Rev No: 1  
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**SAMPLING, TESTING AND MONITORING**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

## 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 the facility's Permit to Take Water (e.g. recording monitoring well levels).

3.2 Sampling requirements for the facility are defined in the facility's sampling schedule, plan, and/or calendar which are available to Operations personnel at the location(s) noted in OP-05 Document and Records Control. The sampling schedule is maintained by the PCT 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 laboratories 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 treated water turbidity, treated water free chlorine residual and distribution free chlorine residual. 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 finished drinking water quality:

- Raw and Treated Water Flow and Rates
- UV Intensity
- Reservoir Levels
- Tower Levels
- System Pressures



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**SAMPLING, TESTING AND MONITORING**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

- 3.5 Adverse water quality incidents are responded to and reported as per SOP for “Adverse Water Quality,” which is located within the FEP.
- 3.6 In-house process control activities are conducted on a regular basis by the certified operator(s) on duty and are as follows:

Operational Parameter	Location	Frequency
Raw Water Turbidity	Tay Area DWS Rope DWS	Monthly
Raw Water pH	Tay Area DWS Rope DWS	Daily (on-site, active plant)
Raw Water Temperature	Tay Area DWS Rope DWS	Daily (on-site, active plant)
Membrane Differential Pressure	Tay Area DWS Rope DWS	Daily (on-site, active plant)
Water Flows	Tay Area DWS Rope DWS	Daily (on-site, active plant)
Pump Run Times	Tay Area DWS Rope DWS	Daily (on-site, active plant)
Treated Water Free Chlorine Residual	Tay Area DWS Rope DWS	Daily (on-site, active plant)
Distribution Free Chlorine Residuals	Tay Area DWS Rope DWS	Daily (while on duty) Two times per week (48 hours apart)
Chemical Usage	Tay Area DWS Rope DWS	Daily (on-site, active plant)

In-house samples are analyzed following approved laboratory procedures. The sampling results are recorded on the corresponding monthly data sheet. The results are entered into PDM. Any required operational process adjustments are recorded in the facility log book.

- 3.7 There are no additional sampling, testing, and monitoring activities related to the system’s most challenging conditions as these conditions are not applicable.
- 3.8 There are no relevant upstream sampling, testing, and monitoring activities that take place for this facility.
- 3.9 Sampling, testing and monitoring results are readily accessible to the Owner at the Georgian Highlands Regional Office in Wasaga Beach.

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.



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**SAMPLING, TESTING AND MONITORING**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

In addition, updates regarding sampling, testing and monitoring activities are provided as per the operating agreement and during regular client meetings.

**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)
- Municipal Summary Report (O. Reg. 170 Schedule 22)
- Process Data Management System (PDM)
- Emergency Contact List and Essential Supplies & Services List (Contacts section of FEP)
- Facility Emergency Plan (FEP) Binder
- SOP – Adverse Water Quality (FEP Binder)
- Monthly Data Sheet
- Sampling Schedule/Plan/Calendar
- SCADA Records

**5. Revision History**

Date	Revision #	Reason for Revision
2021-10-25	0	Procedure issued.
2022-10-14	1	Updated header to include the Corporation of the Township of Tay as a multi-facility operational plan.



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QEMS Proc.: OP-17  
Rev Date: 2022-10-14  
Rev No: 1  
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**MEASUREMENT AND RECORDING EQUIPMENT CALIBRATION AND MAINTENANCE**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

## 1. Purpose

To describe the procedure for the calibration and/or verification and maintenance of measurement and recording equipment at the Rope and Tay Area Drinking Water Systems.

## 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 The Safety, Process and Compliance Manager or designate 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, Senior Operations Manager or O&M Team Lead. 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.
- 3.4 Calibration and maintenance activities are carried out in accordance with procedures specified in the manufacturer's manual, instructions specified in WMS.
- 3.5 Standards, reagents and/or chemicals that may be utilized during calibration and/or verification and/or maintenance activities are verified before use to ensure they are not expired. Any expired standards, reagents and/or chemicals are appropriately disposed of and are replaced with new standards, reagents and/or chemicals as applicable. Additionally, a work order is issued on a monthly basis to ensure that standards, reagents and/or chemicals utilized during calibration and/or verification and/or maintenance within the system are verified.
- 3.6 Any measurement device which does not meet its specified performance requirements during calibration and/or verification must be removed from service (if practical) until repaired, replaced or successfully calibrated. The failure must be reported to the Operations Management, ORO and/or PCT 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



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**MEASUREMENT AND RECORDING EQUIPMENT CALIBRATION AND MAINTENANCE**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

the facility logbook. The PCT or designate 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
2021-10-25	0	Procedure issued.
2022-10-14	1	Updated header to address the Corporation of the Township of Tay as a multi-facility operational plan.

	<b>OPERATIONAL PLAN</b> The Corporation of the Township of Tay (Multi-facility)	QEMS Proc.: OP-18 Rev Date: 2022-10-14 Rev No: 1 Pages: 1 of 3
<b>EMERGENCY MANAGEMENT</b>		
Reviewed by: Process and Compliance Technician		Approved by: Senior Operations Manager

## 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. If the event reaches this level, the instructions indicate the need to contact the Regional Hub Manager.

**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



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Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

involve intervention from outside organizations (client, emergency responders, Ministry of the Environment and Climate Change, media, etc.). Examples may include:

- 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 Rope and Tay Area Drinking Water Systems 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. 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



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**EMERGENCY MANAGEMENT**

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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 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 (and updated as required) 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
- Municipal Emergency Response Plan (as applicable)
- Emergency Contact List/Essential Supplies & Services List (Contacts section of FEP)
- OP-20 Management Review

**5. Revision History**

Date	Revision #	Reason for Revision
2021-10-25	0	Procedure issued
2022-10-14	1	Updated header to address the Corporation of the Township of Tay as a multi-facility operational plan.

 Ontario Clean Water Agency	<b>OPERATIONAL PLAN</b> The Corporation of the Township of Tay (Multi-facility)	QEMS Proc.: OP-19 Rev Date: 2022-10-14 Rev No: 0 Pages: 1 of 5
<b>INTERNAL QEMS AUDITS</b>		
Reviewed by: Process and Compliance Technician		Approved by: Senior Operations Manager

## 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 Rope and Tay Area Drinking Water Systems 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



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**INTERNAL QEMS AUDITS**

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- To assess the effectiveness of the QEMS and assist in its continual improvement.

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;



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- Confirm the audit logistics (locations, dates, expected time and duration of audit activities, any health and safety considerations, availability of key personnel, audit team assignments, etc.).

### 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.



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- 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):
- 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



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**INTERNAL QEMS AUDITS**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

**5. Revision History**

<b>Date</b>	<b>Revision #</b>	<b>Reason for Revision</b>
2022-10-14	0	Procedure issued.



# OPERATIONAL PLAN

The Corporation of the Township of Tay

QEMS Proc.: OP-20  
Rev Date: 2022-10-14  
Rev No: 0  
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## MANAGEMENT REVIEW

Reviewed by: Process and Compliance Technician

Approved by: Senior Operations Manager

### 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 Rope and Tay Area Drinking Water Systems as:

- Operations Management – Severn Sound Hub
- Regional Hub Manager – Georgian Highland Region
- Safety, Process & Compliance (SPC) Manager – Georgian Highland Region

### 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, at least one member of Top Management and at least one facility operator 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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**MANAGEMENT REVIEW**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

- 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 the Corporation of the Township of Tay.

3.9 The QEMS Representative monitors the progress and documents the completion of actions resulting from the Management Review.

#### **4. Related Documents**

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



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**MANAGEMENT REVIEW**

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

**5. Revision History**

Date	Revision #	Reason for Revision
2022-10-14	0	Procedure issued



# OPERATIONAL PLAN

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## CONTINUAL IMPROVEMENT

Reviewed by: Process and Compliance Technician | Approved by: Senior Operations Manager

### 1. Purpose

To describe the procedure for tracking and measuring continual improvement of the Quality & Environmental Management System (QEMS) for the Rope and Tay Area Drinking Water Systems.

### 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



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responsibility and a target date for resolution.

3.2.4 The QEMS Representative ensures corrective actions are documented using the OPEX database and the Summary of Actions 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 of Actions 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.



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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 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 and Climate Change.

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  
OPEX Database  
Summary of Action Items Spreadsheet

## 5. Revision History

Date	Revision #	Reason for Revision
2022-10-14	0	Procedure issued