

The Municipality of Temagami

MULTI-FACILITY OPERATIONAL PLAN

for the *Temagami North & South Drinking Water Systems*



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

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

Any use which a third party makes of this Operational Plan, or any part thereof, or any reliance on or decisions made based on information within it, is the responsibility of such third parties. OCWA accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this Operational Plan or any part thereof.

Any documents developed and owned by OCWA which are referred to in this Operational Plan (including, but not limited to, OCWA's QEMS documents, Standard Operating Procedures, policies and Facility Emergency Plans) remain the property of OCWA. Accordingly, these documents shall not be considered to form part of the Operational Plan belonging to the owner of a drinking-water system under Section 17 of the *Safe Drinking Water Act, 2002*.



OPERATIONAL PLAN

Temagami North & South Drinking Water Systems


QEMS Doc: OP-ToC
Issue Date: 2019-05-27
Pages: 1 of 1

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Reviewed by: R. Marshall, PCT

Approved by: Y. Rondeau, SPC Manager

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 Ontario Clean Water Agency	<p style="text-align: center;">OPERATIONAL PLAN</p> <p style="text-align: center;">Temagami North & South Drinking Water Systems</p>	QEMS Proc.: OP-01 Rev Date: 2019 05 27 Rev No: 0 Pages: 1 of 2
QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS)		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

1. Purpose

To document OCWA's Quality & Environmental Management System (QEMS). This Operational Plan defines and documents the QEMS for the Temagami Drinking Water Systems operated by the Ontario Clean Water Agency (OCWA). It sets out 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) version 2.0.

2. Definitions

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

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

Quality & Environmental Management System (QEMS) – a system to:

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

3. Procedure

3.1 The Temagami Drinking Water Systems are owned by the Municipality of Temagami. OCWA is the contracted Operating Authority for the Temagami Drinking Water Systems, which includes the Temagami water treatment plants and distribution systems.


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 facilities;
2. Understanding and controlling the risks associated with the facility's activities and processes;
3. Achieving continual improvement of the QEMS and the facility's performance.

3.3 The Operational Plan for the facility listed above fulfils the requirements of the MOECC's DWQMS version 2.0). The 21 QEMS Procedures within this Operational Plan align with the 21 elements of the DWQMS.


4. Related Documents

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

 Ontario Clean Water Agency	OPERATIONAL PLAN Temagami North & South Drinking Water Systems	QEMS Proc.: OP-01 Rev Date: 2019 05 27 Rev No: 0 Pages: 2 of 2
QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS)		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

5. Revision History

Date	Revision #	Reason for Revision
2019 05 27	0	Procedure issued – Information within OP-01 was originally set out in the main body of the Temagami Drinking Water Systems Operational Plan (revision 7, dated June 19, 2017). New Purpose, Definitions, Procedure, Related Documents and separate Revision History sections. Addition of new wording (s. 3.3) to clarify that the Operational Plan now aligns with the 21 elements of the DWQMS.

 Ontario Clean Water Agency	OPERATIONAL PLAN Temagami North & South Drinking Water Systems	QEMS Proc.: OP-02 Rev Date: 2019-05-27 Rev No: 0 Pages: 1 of 2
QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS) POLICY		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC 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 intranet and public websites. A hardcopy of the QEMS Policy is posted as specified in the OP-05 Document and Records Control procedure.
- 3.4 Essential suppliers and service providers are advised of OCWA's QEMS Policy as per the OP-13 Essential Supplies and Services procedure.

 Ontario Clean Water Agency	OPERATIONAL PLAN Temagami North & South Drinking Water Systems	QEMS Proc.: OP-02 Rev Date: 2019-05-27 Rev No: 0 Pages: 2 of 2
QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS) POLICY		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC 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 intranet.

4. Related Documents

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

5. Revision History

Date	Revision #	Reason for Revision
2019 05 27	0	Procedure issued – Section 3.4, 3.5 and 3.6 were added to the information originally set out in the main body of the Temagami Drinking Water Systems Operational Plan (revision 7, dated June 19, 2017). New sections: Purpose, Definitions, Procedure, Related Documents and a separate Revision History. Minor revisions to wording in s. 3.3 to reference location of posted copy of the policy. Added sections on how annual policy review is conducted (s. 3.5 and s. 3.6) and reference to OP-13 ESS (s. 3.4). The full revision history for the QEMS policy is available on OCWA's intranet.

 Ontario Clean Water Agency	<p style="text-align: center;">OPERATIONAL PLAN</p> <p style="text-align: center;">Temagami North & South Drinking Water Systems</p>	QEMS Proc.: OP-03 Rev Date: 2019-05-27 Rev No: 0 Pages: 1 of 2
COMMITMENT AND ENDORSEMENT		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

1. Purpose

To document the endorsement of the Operational Plan for the Temagami Drinking Water Systems by OCWA Top Management and the Municipality of Temagami (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 the Regional Hub Manager.
- 3.2 Any major revision of the operational plan will be re-endorsed by OCWA Top Management and the Owner. Major revisions include:
 1. A revision to OCWA's QEMS Policy;
 2. A change to both representatives of the facility's Top Management and/or both of the Owner's representatives that endorsed the Operational Plan;
 3. A modification to the drinking water system processes/components that would require a major 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

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COMMITMENT AND ENDORSEMENT		
Reviewed by: R. Marshall, PCT		Approved by: Y. Rondeau, SPC Manager

5. Revision History

Date	Revision #	Reason for Revision
2019-05-27	0	Procedure issued – Information within OP-03 was originally set out in the main body of the Temagami Drinking Water System Operational Plans (revision 7, dated June 19, 2017). 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). Appendix OP-03A includes the Owner and Top Management sign-off section.

 <small>Ontario Clean Water Agency</small>	<p align="center">OPERATIONAL PLAN</p> <p align="center">Temagami North & South Drinking Water Systems</p>	<table> <tr> <td>QEMS Doc:</td> <td>OP-03A</td> </tr> <tr> <td>Rev Date:</td> <td>2019-06-20</td> </tr> <tr> <td>Rev No:</td> <td>0</td> </tr> <tr> <td>Pages:</td> <td>1 of 1</td> </tr> </table>	QEMS Doc:	OP-03A	Rev Date:	2019-06-20	Rev No:	0	Pages:	1 of 1
QEMS Doc:	OP-03A									
Rev Date:	2019-06-20									
Rev No:	0									
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<p align="center">SIGNED COMMITMENT AND ENDORSEMENT</p>										

This Operational Plan sets out the framework for OCWA's 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 Municipality of Temagami (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 Temagami Drinking Water Systems and will do so in a manner that ensures compliance with applicable legislative and regulatory requirements.

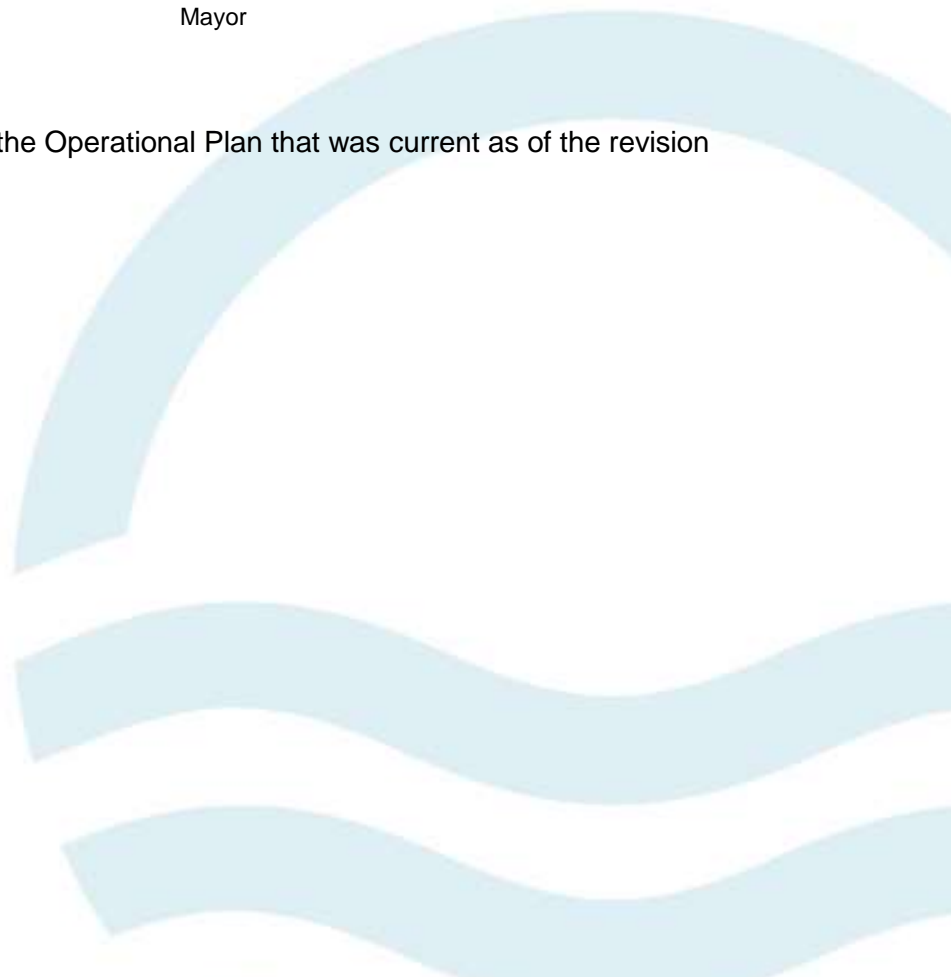
Through the endorsement of this Operational Plan, the Owner commits to work with OCWA to facilitate this goal.

OCWA Top Management Endorsement

Owner Endorsement

<hr/> <i>Victor Legault</i> Senior Operations Manager	<hr/> Date	<hr/> <i>Craig Davidson</i> Treasurer/Administrtor	<hr/> Date
<hr/> <i>Eric Nielson</i> Regional Hub Manager, Northeastern Ontario Regional Hub	<hr/> Date	<hr/> <i>Dan O'Mara</i> Mayor	<hr/> 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

Temagami North & South Drinking Water Systems

QEMS Proc.: OP-04
Rev Date: 2019-05-27
Rev No: 0
Pages: 1 of 1

QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS) REPRESENTATIVE

Reviewed by: R. Marshall, PCT

Approved by: Y. Rondeau, SPC Manager

1. Purpose

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

2. Definitions

None

3. Procedure

3.1 The role of QEMS Representative for the Temagami 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 Temagami 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
2019-05-27	0	Procedure issued – Information within OP-04 was originally set out in the main body of the Temagami Drinking Water System Operational Plan (revision 7, dated June 19, 2017). 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).

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DOCUMENT AND RECORDS CONTROL		
Reviewed by: R. Marshall, PCT		Approved by: Y. Rondeau, SPC 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. This procedure applies to QEMS Documents and QEMS records pertaining to the Temagami 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 issue date. Handwritten records must be legible and permanently rendered in ink or non-erasable marker.
- 3.3 Controls for the Operational Plan include the use of authorized approval, alpha-numeric procedure code, issue date, page numbers on every page, revision number and revision history.

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

Review: QEMS Representative, Team Lead or ORO

Approval: SPC Manager or Operations Management

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

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Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

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., Wonderware, OPEX, PDM, WMS) are 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 make a verbal or written request for a revision be made to improve an existing internal QEMS document or the preparation of a new document. These requests are to be made to the QEMS Representative and should indicate the reason for the change. The need for new or updated documents may also be identified through the Management Review or system audits.

The QEMS Representative communicates any changes made to QEMS documents to relevant operations personnel and coordinates related training (as required). Changes to corporately controlled QEMS documents are communicated and distributed to facility QEMS Representatives by OCWA's Corporate Compliance Group through e-mails, memos and/or provincial, regional hub/cluster or facility-level training sessions.

- 3.7 When a QEMS document is superseded, the hardcopy of the document is promptly removed from its location for disposal or retention (as appropriate).

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

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



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DOCUMENT AND RECORDS CONTROL

Reviewed by: R. Marshall, PCT

Approved by: Y. Rondeau, SPC Manager

Type of Document/Record	Minimum Retention Time	Requirement Reference
DWQMS Operational Plan	10 years	Director's Direction under SDWA
Internal QEMS Audit Results	10 years	OCWA Requirement
External QEMS Audit Results	10 years	OCWA Requirement
Management Review Documentation	10 years	OCWA Requirement
Documents/records required to demonstrate conformance with the DWQMS (specifically all the documents/records listed in OP-05A)	3 years*if no specified legislative requirement below*	OCWA Requirement
Log Books or other record-keeping mechanisms	5 years	O. Reg. 128/04
Training Records for water operators and water quality analysts	5 years	O. Reg. 128/04
Operational checks, sampling and testing (e.g., chlorine residuals, turbidity, fluoride, sampling records), microbiological sampling and testing and chain of custodies	2 years	O. Reg. 170/03
Schedule 23 & 24 (LMR) and THM, HAA, nitrates, nitrites and lead program sampling and testing, Section 11 Annual Reports and Schedule 22 Summary Reports	6 years	O. Reg. 170/03
Sodium test results and related corrective action records/reports, 60 month fluoride test results (if the system doesn't fluoridate), Engineering Reports	15 years	O. Reg. 170/03
Lead samples, correction action records/reports for E. Coli, Total Coliforms and bacterial species	2 years	O. Reg. 170/03
Corrective action records/reports for chemical and radiological parameters under SDWA O. Reg. 169/03, pesticides not listed under O. Reg. 169/03 and health-related parameters in an order or approval	6 years (LMR) 15 years (SMR)	O. Reg. 170/03
Flow Meter Calibration Records, Analyzer Calibration Reports Maintenance Records/Work Orders	2 years	O. Reg. 170/03

3.10 The Operational Plan is reviewed for currency by the QEMS Representative during internal/external audit and Management Review processes. Other QEMS-related documents are reviewed as per the frequencies set out in this Operational Plan or as significant changes (e.g., changes in regulatory requirements, corporate policy or

	<p style="text-align: center;">OPERATIONAL PLAN</p> <p style="text-align: center;">Temagami North & South Drinking Water Systems</p>	<p>QEMS Proc.: OP-05 Rev Date: 2019-05-27 Rev No: 7 Pages: 4 of 5</p>
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Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

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

5. Revision History

Date	Revision	Reason for Revision
2009-08-31	0	Procedure issued
2011-09-07	1	Correction of Process Compliance Manager's title; clarification of responsibility and method of maintaining currency of documents (5.4); description of how network security is maintained (5.5); clarification of retention times (5.9); inclusion of the operation plan review (5.10)
2013-03-13	2	Revised position titles; Operations Manager has been changed to Senior Operations Manager, Cluster Manager has been changed to Operations Manager, Operator has been changed to Operator, and Process Compliance Manager has been removed as the position was discontinued. Removed references to certificate of approval.
2013-06-24	3	Added second location for public access of the Operational Plan, AWWA Standard location, and lead notification form; grouped documents together that are found in the same location; on-call schedule is found on the Shared Outlook Calendar.
2013-10-29	4	Changed the name of the system to Temagami Drinking Water Systems to include the distribution system, added location of distribution system maps and QEMS – Summary of Findings
2015-02-05	5	Added Monthly Operational Reports to Internal QEMS Documents
2017-06-19	6	Changed Monthly report to Quarterly, removed Operations Manager. Changed location of operator certificates from at the Temagami WTP's to the Haileybury WTP. Changed WMS from Hansen to Maximo. Changed location of WMS Reports to Maximo
2019-05-27	7	QP-01 procedure renamed OP-05. Removed Scope and Responsibilities sections. Moved the former Table 1 (Designated location for documents and records required by OCWA's QEMS) to its own appendix (OP-05A). Assigned responsibility for ensuring current versions of QEMS documents are being used to the QEMS Representative (s. 3.4). Clarified that requests for revisions/new QEMS



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DOCUMENT AND RECORDS CONTROL

Reviewed by: R. Marshall, PCT

Approved by: Y. Rondeau, SPC Manager

Date

Revision

Reason for Revision

documents are made to the QEMS Representative (s. 3.6). Moved the former Table 2 (Relevant regulatory and corporate minimum retention periods) to be part of s. 3.9 and expanded on the minimum retention times for documents and records required to demonstrate compliance with legislation. Other minor wording changes.

DOCUMENT AND RECORDS CONTROL LOCATIONS

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

Type of Document/Record	Designated Document Control Location (HC = Hardcopy, EC = Electronic)
Internal QEMS Documents	
Confined Space Program	HC – Haileybury Water Treatment Plant
Emergency Response Plan (corporate)	EC - OCWA's intranet (ocwanet.ocwa.com)
Facility Emergency Plan (FEP) Binder (includes Emergency Contact List, Essential Supplies and Services List, Contingency Plans, Site Specific Emergency Procedures and OCWA's Emergency Management Program)	HC - Temagami North & Temagami South WTP's EC - \\ocwfile\public\NEO DWQMS\DWQMS
OCWA's Health & Safety Management System	EC - OCWA's Portal http://portal.ocwa.com/
On-call Schedule	EC - Microsoft Outlook Shared Calendar
Operational Plan (includes QEMS Procedures)	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water System HC – The Municipality of Temagami
ORO Letter	EC - \\ocwfile\public\NEO DWQMS\DWQMS HC - Temagami North & Temagami South WTP's
QEMS Policy	EC – OCWA's public website www.ocwa.com & OCWA's intranet (ocwanet.ocwa.com) HC – Haileybury WTP
Sample Schedule	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water Systems HC - Temagami North & Temagami South WTP's
Vacation Calendar	EC - Microsoft Outlook Shared Calendar
Internal QEMS Forms (blank)	
Analysis and Action Plan (AAP) Form	EC - \\ocwfile\public\NEO DWQMS\DWQMS
Community Complaint Form	
Contingency Plan Review/Test Summary Form	
Distribution Maintenance and Repair Form	
Environmental Incident Report Form	
Facility Rounds Sheets	
Incidents of Non-Compliance Form	
Instrumentation Calibration/Maintenance Report Form	
Laboratory Chain of Custody Forms	
Loss of Pressure Incident Form	
QEMS – Summary of Findings Spreadsheet	
Tailgate Meeting Form	
Transportation of Dangerous Goods Form	
External QEMS Documents	
American Water Works Association (AWWA)	EC - \\ocwfile\public\NEO DWQMS\DWQMS

DOCUMENT AND RECORDS CONTROL LOCATIONS


Type of Document/Record	Designated Document Control Location (HC = Hardcopy, EC = Electronic)
Standards (as referenced in the DWWP) & MOECC's Watermain Disinfection Procedure	
Applicable Federal and Provincial Legislation	Online at www.e-laws.gov.on.ca
DWQMS Standard	EC - https://www.ontario.ca
Equipment Operation /Maintenance Manuals	HC - Temagami North & Temagami South WTPs EC – Internet (if available)
MOECC Inspection Reports	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water System
Municipal By-laws	Municipal Office
Municipal Drinking Water Licence (MDWL) / Drinking Water Works Permit (DWWP) / Permit to Take Water (PTTW)	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water System HC - Temagami North & Temagami South WTPs
Operations Manual (including standard operating procedures)	HC - Temagami North & Temagami South WTPs
Operator Certificates (OCWA)	HC - Haileybury Water Treatment Plant
External QEMS Forms (blank)	
Adverse Water Quality Incident (AWQI) Form	EC - \\ocwfile\public\NEO DWQMS
MOECC Forms (Form 1,2,3 and Director Notification)	EC - \\ocwfile\public\NEO DWQMS
QEMS Records	
Adverse Water Quality Incident (AWQI) Reports	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water Systems
Analysis and Action Plan (AAP) Report	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water Systems
Annual Compliance / Summary Reports for Municipalities	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water Systems
Audit Reports - External	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water Systems
Audit Reports - Internal	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water Systems
Call-in Reports	EC - Workplace Management System (Maximo)
Community Complaint Records	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water Systems
Contingency Plan Review/Test Summary	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water Systems
Distribution Maintenance and Repair Records	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water Systems
Environmental Incident Reports	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water Systems
Facility Logbooks	HC - Temagami North & Temagami South WTPs
Facility Rounds Sheets	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water System

DOCUMENT AND RECORDS CONTROL LOCATIONS

Type of Document/Record	Designated Document Control Location (HC = Hardcopy, EC = Electronic)
	HC - Haileybury WTP
Incidents of Non-Compliance Records	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water Systems
Infrastructure Review (Capital Letter & 5 Year Capital/Major Maintenance Recommendations)	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water Systems
Laboratory Analytical Reports and completed Chain of Custody Forms	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water Systems
Maintenance & Calibration Records (completed WMS work orders)	EC - Workplace Management System (WMS) EC - \\TORWAN\Temiskaming Shores Cluster\Instrumentation Calibrations
Management Review Documentation	EC - \\ocwfile\public\NEO DWQMS - Temagami Drinking Water Systems
MOECC Records (Form 1,2,3 & Director Notification)	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water Systems
Operator Training Records (OCWA)	EC - OCWA's Training Summary Database
Operator Training Records (Municipality)	HC - Municipal Office
QEMS Communications - External	EC - Microsoft Outlook E-mail
QEMS Communications - Internal	EC - Microsoft Outlook E-mail
QEMS – Summary of Findings Record	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water Systems
Quarterly Operations Reports (to the Owner)	EC - \\ocwfile\public\NEO DWQMS\DWQMS - Temagami Drinking Water Systems
SCADA Records	EC - Outpost5/Wonderware
Tailgate Records	HC - Haileybury Water Treatment Plant
Transportation of Dangerous Goods Record	HC - Haileybury Water Treatment Plant

Revision History

Date	Revision #	Reason for Revision
2019-05-27	0	Appendix issued; Table was originally included within the Document and Records Control Procedure (QP-01) (revision 6, dated June 19, 2017). Added section for blank external QEMS forms, changed location for Confined Space Program and Operational Plan and changed name of OCWA's Safety Manual to OCWA's Health and Safety Management System and its location.

	<p style="text-align: center;">OPERATIONAL PLAN</p> <p style="text-align: center;">Temagami North & South Drinking Water Systems</p>	<p>QEMS Proc.: OP-06 Rev Date: 2019-05-27 Rev No: 0 Pages: 1 of 2</p>
DRINKING WATER SYSTEM		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

1. Purpose

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

3. Procedure

- 3.1 Refer to OP-6A for a description of the facilities in the Temagami North Drinking Water System.
- 3.2 Refer to OP-6B for a description of the facilities in the Temagami South Drinking Water System.

	<p style="text-align: center;">OPERATIONAL PLAN Temagami North & South Drinking Water Systems</p>	<p>QEMS Proc.: OP-06 Rev Date: 2019-05-27 Rev No: 0 Pages: 2 of 2</p>
DRINKING WATER SYSTEM		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

3 Related Documents

None

4 Revision History

Date	Revision #	Reason for Revision
2019-05-27	0	Procedure issued – Information within OP-06 (s. 3) was originally set out in main body of the Temagami Drinking Water Systems Operational Plan (revision 7, dated June 19, 2017). New Purpose, Definitions, Procedure, Related Documents and separate Revision History sections.

TEMAGAMI NORTH DRINKING WATER SYSTEM

Reviewed by: R. Marshall, PCT

Approved by: Y. Rondeau, SPC Manager

Temagami North Drinking Water System Overview

Owner / Operating Authority

The Temagami North Drinking Water System is owned by The Corporation of the Municipality of Temagami. The treatment system is operated by the Ontario Clean Water Agency and the distribution system is operated by OCWA. This subject system is not interconnected to any other drinking water systems owned by different owners.

Source Water

Raw Water Supply


The intake pipe for the Temagami North water treatment plant is located approximately 165 m off the west shore of Net Lake at 10 m below the low water level of the lake. The raw water is directed by gravity via a 222 m long, 250 mm diameter intake pipe to a low lift pumping station consisting of a wet well and two submersible low lift pumps, each rated at 3.8 L/s (328 m³/day). These pumps are controlled by the system PLC (programmable logic controller) and discharge to the two BCA Pre-Fabricated package treatment plants.

General Characteristics

The raw water source for the treatment plant is Net Lake. The water from Net Lake is typically low in turbidity, slightly basic and stable in alkalinity. Temperature fluctuates significantly through the seasons ranging from approximately 0.01 °C in the winter to as high as 28 °C during the summer. Bacteriological analysis of the raw water indicates a source of relatively good quality. The results of chemical analyses are consistently below the Ontario Drinking Water Quality Standards.

Net Lake: Raw Water Characteristics

[illegible]

	<p style="text-align: center;">OPERATIONAL PLAN</p> <p style="text-align: center;">Temagami North & South Drinking Water Systems</p>	<p>QEMS Proc.: OP-06A Rev Date: 2019-05-27 Rev No: 0 Pages: 2 of 5</p>
TEMAGAMI NORTH DRINKING WATER SYSTEM		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

Common Fluctuations

Raw water turbidity increases during spring runoff and significant rainfall events. As well, water temperature changes significantly from winter to summer. Warm summer temperatures may result in an increase of taste and odour concerns. Aluminum sulphate and polymer are adjusted accordingly to assist with sedimentation and filtration.

Threats

Potential sources of raw water contamination include fuel spills from recreational water crafts, beaver activity, train derailment, and a major surcharge of effluent from the Temagami North Lagoon.

Operational Challenges

Spring and fall turnover is the greatest operational challenge for the Temagami North DWS. The turnover creates higher demands on process operations. It can affect the source waters alkalinity, pH, temperature and turbidity. These changes can occur quickly and require adjustments to chemical dosages.

Treatment System Description

Water Treatment

The BCA plants each consist of 2 flash mixing chambers, 2 flocculation tanks, two clarification chambers, and two deep dual media filters (sand/anthracite). Aluminum sulphate and polymer are added for the coagulation/flocculation process, sodium carbonate for pH adjustment and sodium hypochlorite for disinfection. All chemicals are added using metering pumps. The plant is equipped with an automated monitoring system that records various components of the process including system flows and chemical dosages.

Filter backwashes are initiated by head loss, turbidity levels, time or manually by the operator. The backwash wastewater and sedimentation sludge is directed to a drainage system that leads to the Municipal sanitary sewer system for disposal. Alarmed chlorine and turbidity monitoring systems are in place to ensure the water is of acceptable quality before entering the distribution system.

Water Storage and Pumping Capabilities

The treated water is directed to two of the three clearwells, which have a combined capacity of 167 m³. The two highlift pumps direct the treated water into the distribution system, which is equipped with a standpipe known as the North Tower. The standpipe has a total storage capacity of 732 m³ and helps to maintain water pressure within the system. The distribution

	<p style="text-align: center;">OPERATIONAL PLAN</p> <p style="text-align: center;">Temagami North & South Drinking Water Systems</p>	<p>QEMS Proc.: OP-06A Rev Date: 2019-05-27 Rev No: 0 Pages: 3 of 5</p>
TEMAGAMI NORTH DRINKING WATER SYSTEM		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

system is composed of 218 service connections, 20 fire hydrants, and 3 dead end locations. The watermains are made of cast iron material and range in size from 6" to 8".

Emergency Power

A diesel generator with automatic start is located in a nearby sewage pumping station and is available to provide emergency power for the entire facility in the event of a power interruption.

Treatment System Process Flow Chart

Refer to Figure 1 on page 4

Description of the Distribution System Components

The Temagami North DWS is a standalone system not connected to another drinking water system. There are no upstream or downstream processes relied upon to ensure the provision of safe drinking water. It is classified as a Large Municipal Residential Drinking Water System, serving an estimated population of 300 residents

Distribution System Components Flow Chart

Refer to Figure 2 on page 5

Revision History

Date	Revision #	Reason for Revision
2019-05-27	0	Procedure issued – Information within OP-06 (s. 3) was originally set out in main body of the Temagami Drinking Water Systems Operational Plan (revision 7, dated June 19, 2017). New Purpose, Definitions, Procedure, Related Documents and separate Revision History sections. Updates based on revisions to DWQMS (e.g. removal of critical upstream or downstream processes, separation of systems that provide primary and/or secondary disinfection and systems that do not, for systems that are connected to another system with different owners, must now include which system is relied upon to ensure the provision of safe drinking water). Moved order of system description to follow the process (e.g., source water first, then treatment, then distribution). Updated the Raw Water Characteristics table with more current data.

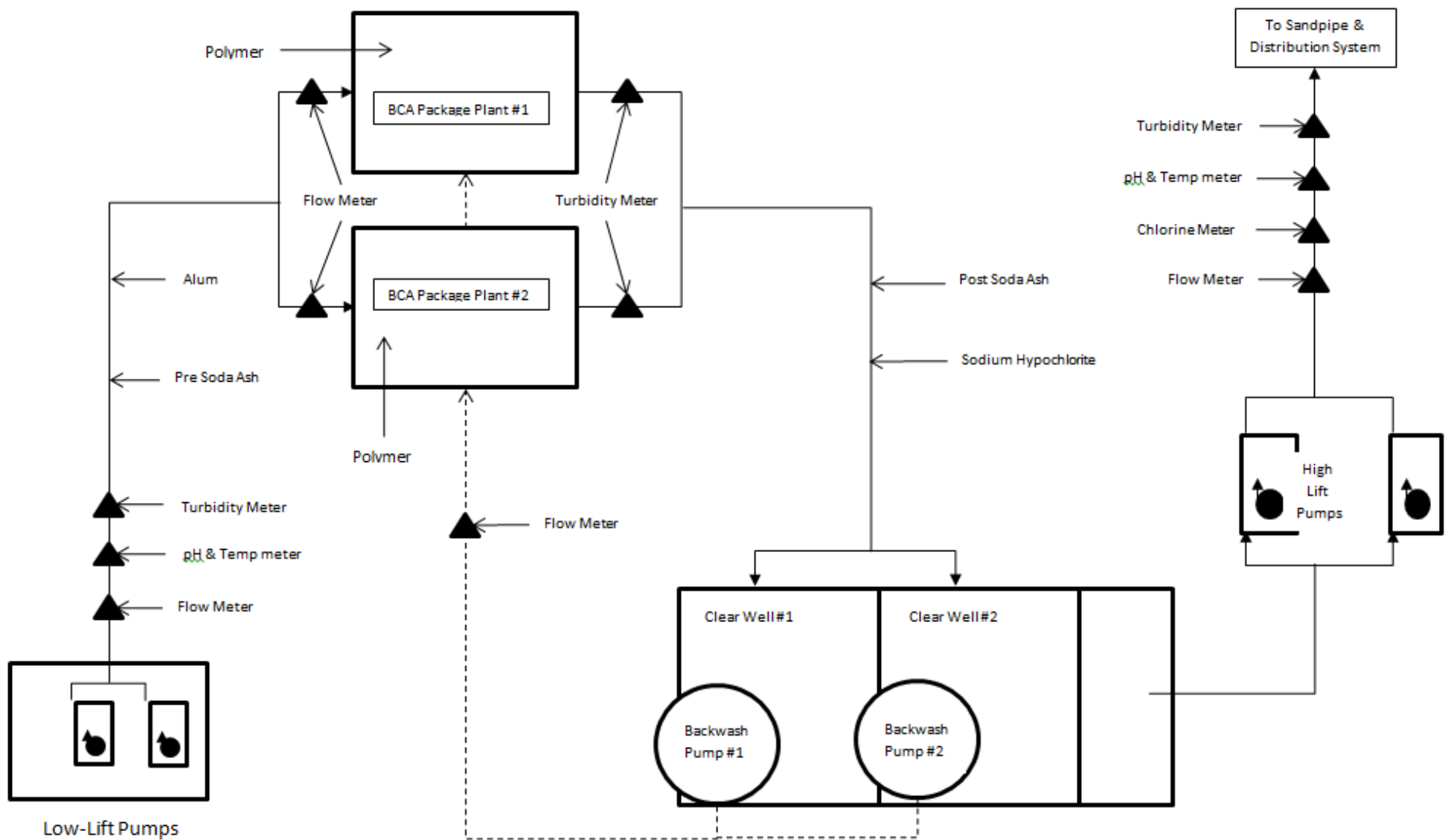


Figure 1 - Temagami North Water Treatment Plant - Process Flow Chart (2018)

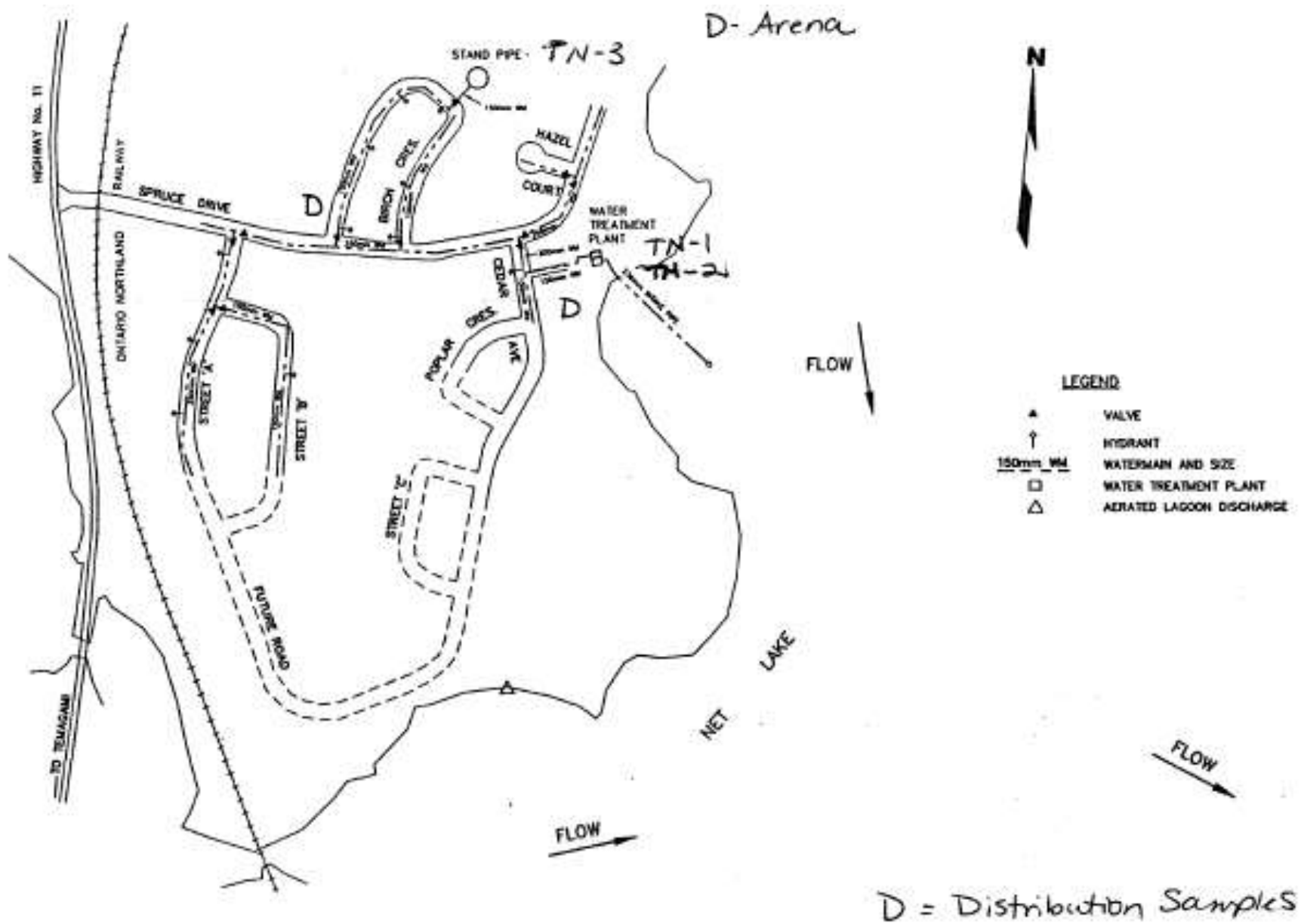



Figure 2 - Temagami North Distribution System Map. Larger scale version available at the Temagami Public Works office

	OPERATIONAL PLAN Temagami North & South Drinking Water Systems	QEMS Proc.: OP-06B Rev Date: 2019-05-27 Rev No: 0 Pages: 1 of 5
TEMAGAMI SOUTH DRINKING WATER SYSTEM		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

Temagami South Drinking Water System Overview

Owner / Operating Authority

The Temagami South Drinking Water System is owned by The Corporation of the Municipality of Temagami. The treatment system is operated by the Ontario Clean Water Agency and the distribution system is operated by OCWA. This subject system is not interconnected to any other drinking water systems owned by different owners.

Source Water

Raw Water Supply


Located on Lakeshore Road, the Temagami South treatment plant obtains its source water from Lake Temagami. The water is drawn through a 20 m long, 200 mm diameter intake pipe that extends from a submerged intake structure 5.7 m below the average water level. The intake pipe directs water by gravity to a low lift pumping station consisting of a wet well and two submersible low lift pumps, each rated at 11 L/s (950 m³/day). These pumps are controlled by the treatment systems' PLC and discharge to the two package plants located with the WTP.

General Characteristics

The raw water source for the treatment plant is Lake Temagami. The water from Lake Temagami is typically low in turbidity with a neutral pH and stable alkalinity. Temperature fluctuates significantly through the seasons ranging from approximately 2.5 °C in the winter to as high as 27 °C during the summer. Bacteriological analysis of the raw water indicates a source of relatively good quality. The results of chemical analysis are consistently below the Ontario Drinking Water Quality Standards.

Lake Temagami: Raw Water Characteristics

Characteristic	2016			2017			2018		
	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean
<i>E. coli</i> (CFU/100 mL)	0	5	2.27	2	12	2.96	0	50	4.4
Total Coliforms (CFU/100 mL)	0	1140	104.3	2	485	69.39	0	750	118
Turbidity (NTU)	0	10	0.93	0	10	1.09	0	10	1.2
Temperature (°C)	1.47	36.98	18	0	32.64	16.63	1.6	29	12
pH	3.25	11.07	7.08	4.2	11.41	7.24	3.4	10.6	7.8
Alkalinity (mg/L)	5	30	24	14	42	24	20	34	26
Colour (TCU)	0	5	2.27	2	12	2.96	5	5	5

	<p style="text-align: center;">OPERATIONAL PLAN</p> <p style="text-align: center;">Temagami North & South Drinking Water Systems</p>	<p>QEMS Proc.: OP-06B Rev Date: 2019-05-27 Rev No: 0 Pages: 2 of 5</p>
TEMAGAMI SOUTH DRINKING WATER SYSTEM		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

Common Fluctuations

Raw water turbidity increases during spring runoff and significant rainfall events. As well, water temperature changes significantly from winter to summer. Warm summer temperatures may result in an increase of taste and odour concerns. Aluminum sulphate and polymer are adjusted accordingly to assist with sedimentation and filtration.

Threats

Potential sources of raw water contamination include fuel spills from boats, planes or highway traffic. Other sources would be the heavy recreational use, beaver activity, and train derailment.

Operational Challenges

Spring and fall turnover is the greatest operational challenge for the Temagami South DWS. The turnover creates higher demands on process operations. It can affect the source waters alkalinity, pH, temperature and turbidity. These changes can occur quickly and require adjustments to chemical dosages.


Treatment System Description

Water Treatment

The treatment systems are two different package plants. One is a BCA Pre-Fabricated package treatment plant which operates automatically and the other is a Neptune Microfloc “Trident” package treatment plant which operates manually. Each plant provides chemically assisted filtration through coagulation, flocculation, sedimentation and filtration operations. Aluminum sulphate and polymer are added to the raw water upstream of the static mixer for the coagulation/flocculation process. Sodium carbonate is injected for pH adjustment and sodium hypochlorite is used for disinfection. All chemicals are added using two metering pumps. The plant is equipped with an automated monitoring system that records various components of the process.

Water Storage and Pumping Capabilities

The filtered water is then directed to two clearwells having a total capacity of 257 m3. Two high lift pumps rated at 916 m3/day direct finished water to the distribution system and an elevated tower, which maintains pressure to the distribution system. The distribution system is composed of 182 service connections, 19 fire hydrants, and 7 dead end locations. The watermains are made of cast iron and some pvc material that range in size from 6” to 8”.

	<p style="text-align: center;">OPERATIONAL PLAN</p> <p style="text-align: center;">Temagami North & South Drinking Water Systems</p>	<p>QEMS Proc.: OP-06B Rev Date: 2019-05-27 Rev No: 0 Pages: 3 of 5</p>
TEMAGAMI SOUTH DRINKING WATER SYSTEM		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

Emergency Power

For emergency purposes, a diesel generator set is available to provide emergency power to the entire facility in the event of a power outage.

Treatment System Process Flow Chart

Refer to Figure 1 on page 5

Description of the Distribution System Components

Temagami South is classified as a Large Municipal Residential Drinking Water System and has 182 service connections serving a nominal population of 350 residents. The distribution system is equipped with an elevated storage reservoir known as the “South Tower” which has a working storage capacity of 570 m³ and assists with maintaining water pressure in the system.

Distribution System Components Flow Chart

Refer to Figure 2 on page 5

Revision History

Date	Revision #	Reason for Revision
2019-05-27	0	<p>Procedure issued – Information within OP-06 (s. 3) was originally set out in main body of the Temagami Drinking Water Systems Operational Plan (revision 7, dated June 19, 2017). New Purpose, Definitions, Procedure, Related Documents and separate Revision History sections. Updates based on revisions to DWQMS (e.g. removal of critical upstream or downstream processes, separation of systems that provide primary and/or secondary disinfection and systems that do not, for systems that are connected to another system with different owners, must now include which system is relied upon to ensure the provision of safe drinking water). Moved order of system description to follow the process (e.g., source water first, then treatment, then distribution). Updated the Raw Water Characteristics table with more current data.</p>

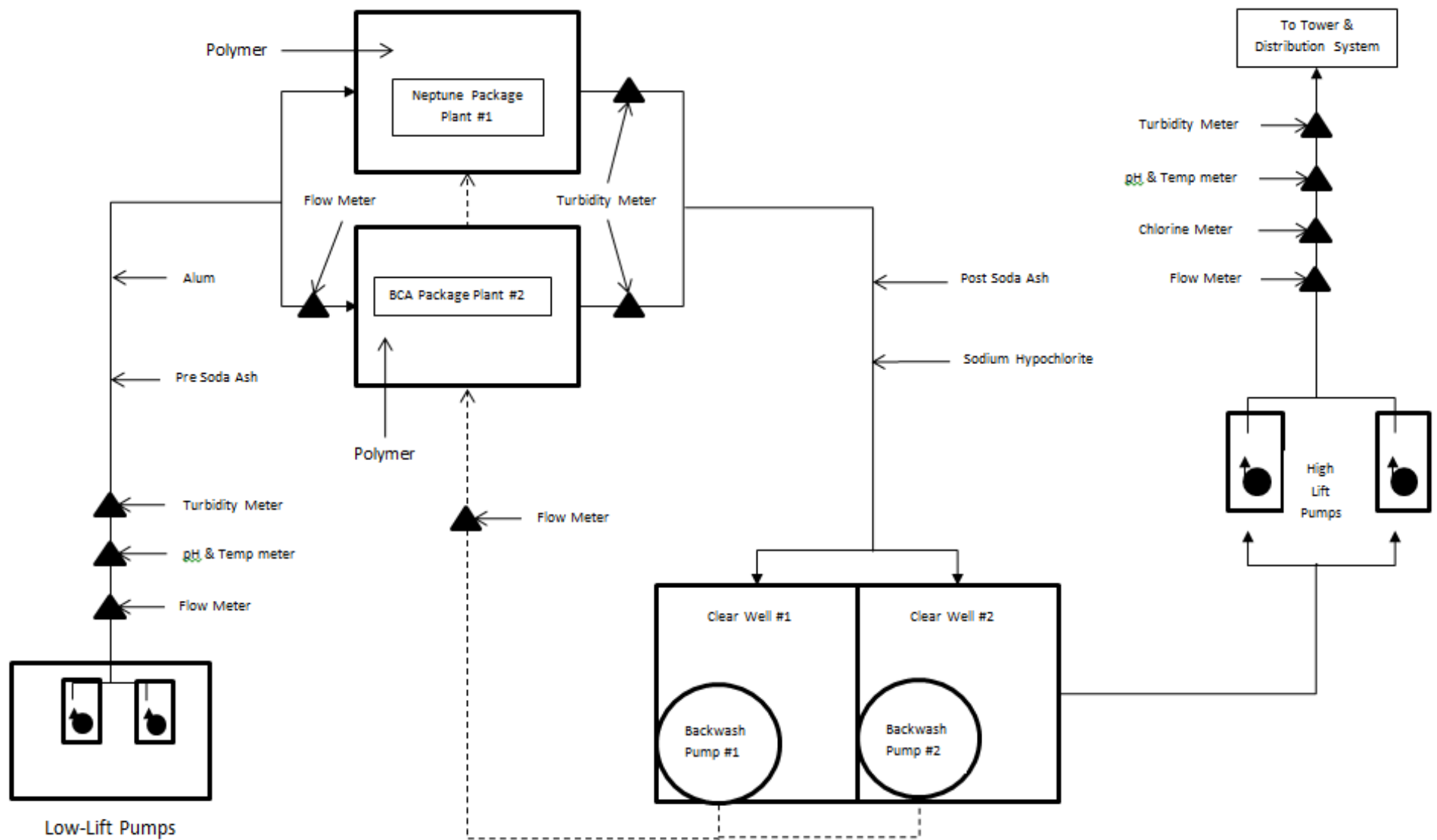


Figure 1 – Temagami South Water Treatment Plant - Process Flow Chart (2018)

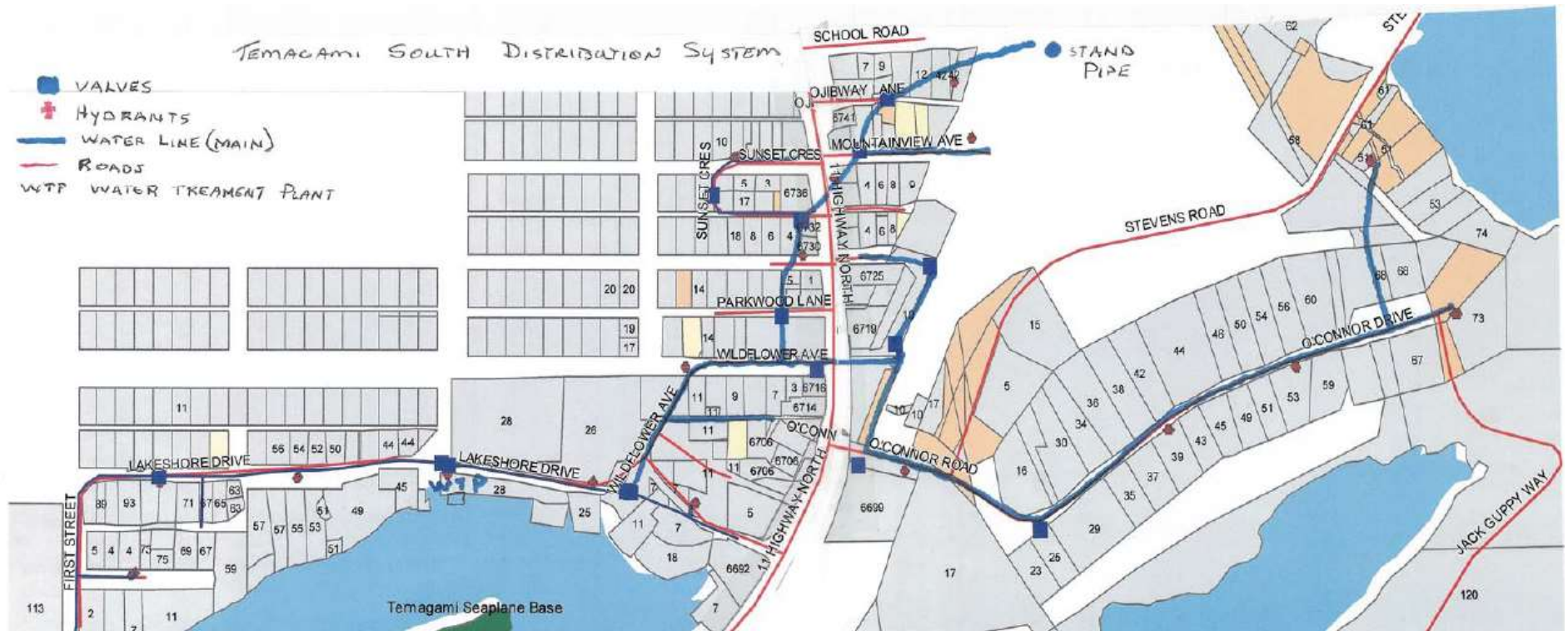


Figure 2 - Temagami South Distribution System Map. Larger scale version available at the Temagami Public Works office

	<p style="text-align: center;">OPERATIONAL PLAN</p> <p style="text-align: center;">Temagami North & South Drinking Water Systems</p>	<p>QEMS Proc.: OP-07 Rev Date: 2019-05-28 Rev No: 0 Pages: 1 of 4</p>
RISK ASSESSMENT		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC 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 anything 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.

	<p style="text-align: center;">OPERATIONAL PLAN</p> <p style="text-align: center;">Temagami North & South Drinking Water Systems</p>	<p>QEMS Proc.: OP-07 Rev Date: 2019-05-28 Rev No: 0 Pages: 2 of 4</p>
RISK ASSESSMENT		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC 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.

****The following is applicable for 36 month Risk Assessments conducted after the issuance of this procedure:***

At a minimum, potential hazardous events and associated hazard as identified in the most current version of the Ministry of the Environment and Climate Change (MOECC) 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, standard operating procedures/emergency procedures/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 MOECC's "Procedure for Disinfection of Drinking Water in Ontario" are met, OCWA has established mandatory Critical Control Points (CCPs).

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

- Equipment or processes required to achieve primary disinfection (e.g., chemical and/or UV disinfection system, coagulant dosing system, filters, etc.)
- Equipment or processes necessary for maintaining secondary disinfection in the distribution system
- Fluoridation system

3.3.5 Additional CCPs for the system are determined by evaluating and ranking the hazardous events for the remaining activities/process steps (i.e., those not included as OCWA's minimum CCPs).

3.3.6 Taking into consideration existing control measures (including the reliability and redundancy of equipment), each hazardous event is assigned a value for the likelihood and a value for the consequence of that event occurring based on the following criteria:

	OPERATIONAL PLAN Temagami North & South Drinking Water Systems	QEMS Proc.: OP-07 Rev Date: 2019-05-28 Rev No: 0 Pages: 3 of 4
RISK ASSESSMENT		
Reviewed by: R. Marshall, PCT		Approved by: Y. Rondeau, SPC Manager


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

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

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

3.3.7 Hazardous events and rankings are reviewed and any activity/process step is identified as an additional CCP if all of the following criteria are met:

- ✓ 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 MOECC or both.

 Ontario Clean Water Agency	<p style="text-align: center;">OPERATIONAL PLAN</p> <p style="text-align: center;">Temagami North & South Drinking Water Systems</p>	QEMS Proc.: OP-07 Rev Date: 2019-05-28 Rev No: 0 Pages: 4 of 4
RISK ASSESSMENT		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

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

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

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

4. Related Documents

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

5. Revision History

Date	Revision #	Reason for Revision
2019-05-28	0	<p>Procedure issued – Information within OP-07 was originally set out in the QEMS Procedure QP-02 Risk Assessment and Risk Assessment Outcomes (revision 3, dated October 29, 2013). Revised Purpose to reflect element 7 requirements only. Included minimum requirements for the Risk Assessment Team (QEMS Representative, at least one operator for the system and at least one member of Operation Management. Clarified role of QEMS Representative in coordinating the risk assessment and maintaining documents and records. Re-worded procedure for performing the risk assessment (process itself remains essentially unchanged). Included reference to MOECC's "Potential Hazardous Events for Municipal Residential Drinking Water Systems". Removed requirements for documenting the outcomes of the risk assessment (now covered in OP-08). Changed annual review to at least once every calendar year and included potential considerations when performing the review.</p>

	<p style="text-align: center;">OPERATIONAL PLAN</p> <p style="text-align: center;">Temagami North & South Drinking Water Systems</p>	<p>QEMS Proc.: OP-08 Rev Date: 2019-05-28 Rev No: 0 Pages: 1 of 2</p>
RISK ASSESSMENT OUTCOMES		
Reviewed by: R. Marshall, PCT		Approved by: Y. Rondeau, SPC 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 (Temagami North DWS) and OP-8B (Temagami South DWS) 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 and OP-08B. This includes:

- Identified potential hazardous events and associated hazards (possible outcomes) for each of the system's activities/process steps;

****Note (applicable for 36 month Risk Assessments conducted after the issuance of this procedure): Hazards listed in the MOECC's "Potential Hazardous Events for Municipal Residential Drinking Water Systems" are indicated in the appropriate column using the reference numbers in Table 4 of OP-08A and OP-8B.***

- 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 and OP-08B.

	<p style="text-align: center;">OPERATIONAL PLAN</p> <p style="text-align: center;">Temagami North & South Drinking Water Systems</p>	<p>QEMS Proc.: OP-08 Rev Date: 2019-05-28 Rev No: 0 Pages: 2 of 2</p>
RISK ASSESSMENT OUTCOMES		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

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

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

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

5. Revision History

Date	Revision #	Reason for Revision
2019-05-28	0	<p>Procedure issued – Information within OP-08 was originally set out in the QEMS Procedure QP-02 Risk Assessment and Risk Assessment Outcomes (revision 3, dated October 29, 2013). Clarified role of QEMS Representative in updating the information in OP-08A and OP-08B. Summary of Risk Assessment Outcomes. Included requirements for how to document the risk assessment outcomes using the tables in OP-08A&B. Clarified responsibility of Operations Management to ensure Critical Control Limits are set and related procedures are developed. Included reference to OP-14 Review and Provision of Infrastructure to emphasize the need for Operations Management to review the risk assessment outcomes during the infrastructure review.</p>

Summary of Risk Assessment Outcomes

Temagami North Drinking Water System

QEMS Proc: OP-8A
Revised: 2018-10-31
Rev. #: 7
Pages: 1 of 9

Table 1 - Risk Assessment Table

Note: Processes referred to in OP-07 Risk Assessment and OP-08 Risk Assessment Outcomes must be identified as mandatory Critical Control Points (CCPs) as applicable for all OCWA-operated facilities. Mandatory CCPs are not required to be ranked.

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
Source/Intake	Spill of biological or chemical material into Net Lake (Railway, beaver activity, water crafts, or lagoon surcharge)	Contamination of source water	Monitor and sample Site specific Environmental Emergency Procedure (EEP) for Off-site Chemical/Fuel Spill Site specific EEP for Contaminated Raw Water	3	3	9	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	Breakage/blockage of intake pipe	Loss of water supply	None – staff would take appropriate response measures - alternate intake pipe, supply from tower	2	3	6	
	Spring/fall turnover	Increased demand on process operations such as chemical optimization for changes in pH, alkalinity, temperature and turbidity.	Staff would keep higher alkalinity and make appropriate operational changes Raw Water Turbidity Analyzer Treated Water Turbidity Alarms	4	2	8	
Low Lift Pumps	Low lift pump failures	Loss of water supply	Redundancy (2 pumps), scheduled maintenance activities, back-up generator for loss of power situations, alarms for BCA and low clearwell level Site specific EEP for Low Lift Pump Failure	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
Filtration Process (includes flocculation, coagulation, dual media gravity filters)	Aluminum Sulphate feed pump failure	Ineffective removal of pathogens (minimum treatment requirements not met)	Redundancy (1 back-up pump), automatic switchover, operator inspections (tank levels, calculate dosage), scheduled maintenance activities, chemical pump failure alarm Site specific EEP for Aluminum Sulphate Pump Failure				<input checked="" type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input type="checkbox"/> No
	Soda Ash feed pump failure (pre and post treatment)	Lowered pH, ineffective coagulation process, potential for increased turbidity and/or AWQI	Redundancy (1 back-up pump), automatic switchover, operator inspections (tank levels, calculate dosage), scheduled maintenance activities, chemical pump failure alarm				
	Polymer feed pump failure	Increased turbidity, ineffective removal of pathogens	Redundancy (1 back-up pump), automatic switchover, operator inspections (tank levels, calculate dosage), scheduled maintenance activities, chemical pump failure alarm				
	Filter breakthrough	Increased turbidity, ineffective removal of pathogens, potential for AWQI	On-line monitoring of filter effluent turbidity, alarm on high turbidity, redundancy (2 filters), regular backwashes, scheduled maintenance activities, visual inspection of media Site specific EEP for Reporting and Responding to Adverse Turbidity in Large Municipal Residential Systems				
	Backwash system failure	Increased turbidity, ineffective removal of pathogens, potential for loss of treated water supply	Pump failure alarms, two backwash pumps (redundancy), on-line monitoring, scheduled maintenance activities, alternate system for backwashing (manual) Site specific EEP for Backwash Failure (Filters)				
	Blower Failure	Backwash System Failure and increased turbidity	Back up blower available, 2 backwash pumps (redundancy), site specific SOP for				

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
			Backwash Failure				
	Turbidity meter failure	Unknown turbidity levels, potential for AWQI	Filter redundancy (take filter out of service until analyzer replaced/repared), scheduled maintenance activities, in-house readings, operator inspections				
	Desludge valve failure	Plugged filter and potentially high turbidity	Manually open valve, turbidity monitoring, turbidity alarm, operator maintenance checks				
Clearwells	Low level	Inadequate contact time for primary disinfection Inadequate treated water supply	Redundancy (3 clearwells), schedule maintenance and inspection activities, low level clearwell alarm, town ordered water conservation or ban Site specific EEP for Water Supply Shortage				<input checked="" type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input type="checkbox"/> No
	Clearwell out of service for repair, maintenance	Inadequate contact time for primary disinfection	Three-celled clearwell with isolation valves, increase chlorine dosage into clearwell, schedule controlled maintenance plan				
Sodium Hypochlorite System (for primary disinfection)	Chlorine feed pump failure	Loss of disinfection Low chlorine residual Inadequate inactivation of pathogens Potential for AWQI	Redundancy (1 standby and 1 back-up pumps), on-line monitoring with alarms, in-house residual testing and dosage calculations, scheduled maintenance activities, spare pumps are also available within the hub Site specific EEP for Chlorine Pump Failure, Site specific EEP for Low or High Chlorine Residual in Treated Water, Site specific Standard Operating Procedure (SOP) for CT, EEP for Reporting and Responding to Adverse Chlorine Residuals in Large Municipal Residential Systems, Contingency Plan for Adverse				<input checked="" type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input type="checkbox"/> No

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
			Water/Potential and/or Unsafe Water.				
	Analyzer failure	Unknown chlorine residual levels, potential for AWQI	Low level Alarm, in-house residual testing, scheduled maintenance activities, back-up analyzers Site specific SOP for CT				
	Low supply of sodium hypochlorite	Inadequate disinfection, potential for AWQI	Operator checks, chemical available within hub				
Tower	Tower out of service for repair, maintenance	Lowered fire fighting capability	Supply water from clearwells, scheduled controlled maintenance plan, Site specific EEP for Tower Low Level	2	3	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
High Lift	High lift pump failures	Low pressure in distribution system, possible contamination due to infiltration	Redundancy (2 pumps), scheduled maintenance activities, operational control, on-line monitoring of discharge pressure, alarms for low pressure, tower as a back-up for pressure and supply Site specific EEP for High Lift Pump Failure, EEP for Low Pressure Events in the Distribution System.	2	3	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Secondary Disinfection	Loss of residual in distribution system	Failure to control biofilm and pathogens (long term), AWQI	Continuous on-line monitoring of chlorine residual into the distribution system, System-wide residual testing, Regulatory scheduled maintenance (performed by municipality), Alarms for low/high chlorine residual in water entering distribution system, EEP for Reporting and Responding to Adverse Chlorine Residuals in Large Municipal Residential Systems				<input checked="" type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input type="checkbox"/> No

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
Water Treatment System	Power failure	Loss of treated water supply	Back-up diesel generator, Scheduled maintenance activities for back-up generator, Site specific EEP for Power Failure of Long Duration	4	2	8	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	Standby power failure	Loss of treated water supply	Power failure alarm, scheduled maintenance, portable generator available within the NEO Hub (within 4-8 hours), Site specific EEP for Standby Power Failure.	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	Vandalism/terrorism	Contamination of the water supply, Damage to critical equipment	Locked (water plant , Signage, Visited daily by operational staff, Site specific Environmental Emergency Procedure for Vandalism or Suspected Unauthorized Entry.	2	4	8	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Distribution System	Adverse Water Quality Result as described in O. Reg. 170/03	Potential for unsafe drinking water	Site specific SOP Sampling Schedule EEP for Reporting and Responding to Adverse Results in Large Municipal Residential Systems (several EEPs)	3	4	12	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No – no control limits
Watermains	Watermain structural failure/breaks	Contamination, loss of pressure, loss of supply, road damage	Notification/complaints from consumers, increased demand in treated water, increase in waste water collection, SOP for main waterline and waterline repair	4	2	8	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Valves	Failure	Loss of control, line breaks and/or contamination, loss of water supply	Maintenance program, Response to consumer complaints	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Flushing (clean out pipes, remove accumulation)	Failure to flush	Contamination, loss of supply, loss of fire protection	Maintenance program, Training, Procedures for flushing	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
							<input checked="" type="checkbox"/> No
Connection, hydrants, valves, constructions, etc.	Accident, vandalism	Contamination, loss of supply	Inspection, Notification/complaints from consumers, Increase in water/wastewater usage	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Service Connections	Cross connection	Contamination	Consumer notification/complaints Distribution system microbiological testing	1	4	4	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	Structural failure/breaks	Contamination, loss of pressure, loss of supply	Consumer notification/complaints	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Maintain System Pressure	Major fire	Contamination, loss of pressure	Emergency management, Notification by fire department for major fires,	3	1	3	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
New Construction	Sub-standard construction and/or commissioning	Contamination	AWWA guidelines, testing, Provincial Standard Inspection, training	1	4	4	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Temporary Water Distribution System (temporary system put in place during construction)	Infiltration	Contamination	AWWA guidelines, testing, Provincial Standard Inspection, training	1	4	4	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No

Table 2 - Identified Critical Control Points (CCPs)

CCP	Critical Control Limits	Monitoring Procedures	Response, Reporting and Recording Procedures
Filtration Process	<p>Alum, Soda Ash and Polymer Feed Both pumps fail an alarm is initiated</p> <p>Filter Effluent Turbidity Alarms (Filters 1-2) High set point = 1.0 NTU</p>	<ul style="list-style-type: none"> SCADA (continuous online analyzers) Operator checks including dosage calculations Redundancy (2 filters) Trend review and sign-off as per O. Reg. 170/03 	<p>Refer to:</p> <ul style="list-style-type: none"> Site specific EEP for Reporting and Responding to Adverse Turbidity in Large Municipal Residential Systems Site specific EEP for Backwash Failure (Filters)
Sodium Hypochlorite System (Chemical Feed)	<p>Free Chlorine Residual Alarms - Treated Alarms Low set point ≥ 0.85 mg/L High set point = 3.50 mg/L</p>	<ul style="list-style-type: none"> SCADA (continuous online analyzers) Daily operator checks including dosage calculations Trend review and sign-off as per O. Reg. 170/03 	<p>Refer to:</p> <ul style="list-style-type: none"> Site specific SOP for CT Site specific EEP for Chlorine Pump Failure Site specific EEP for Low or High Chlorine Residual in Treated Water EEP for Reporting and Responding to Adverse Chlorine Residuals in Large Municipal Residential Systems
Clearwell	<p>Clearwell Level Alarms – Plant Clearwell No. 1: Low set point = 1.30 m High set point = 2.98 m</p> <p>Clearwell No. 2+3: Low set point = 1.75 m High set point = 2.98 m</p>	<ul style="list-style-type: none"> SCADA (continuous online analyzers) Daily operator checks Trend review and sign-off as per O. Reg. 170/03 	<ul style="list-style-type: none"> Site specific SOP for CT Site specific EEP for Water Supply Shortage CP for Unsafe Water
Secondary Disinfection	<p>Free Chlorine Residual - Distribution Low = 0.05 mg/L High = 4.0 mg/L</p>	<ul style="list-style-type: none"> Distribution chlorine residuals monitored as per O. Reg. 170/03 	<p>Refer to:</p> <ul style="list-style-type: none"> EEP for Reporting and Responding to Adverse Chlorine Residuals in Large Municipal Residential Systems.

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 a year. In addition, the risk assessment must be conducted at least once every thirty-six months. Refer to OP-07 and OP-08.

Date of Activity	Type of Activity	Participants	Summary of Results
2009-08-11	Risk Assessment	Amanda Dubuc (PCT), Ilona Bruneau (PCT), Michael Del Monte (Operations Manager), Ed Hillman (ORO)	Conducted initial risk assessment.
2009-08-31	Review	Amanda Dubuc (PCT)	Desktop review prior to submission of Partial Accreditation application. No changes.
2010-07-14	Review	Amanda Dubuc (PCT), Eric Nielson (Senior Operations Manager)	Review during Internal Audit. No changes.
2010-10-14	Review	Amanda Dubuc (PCT), Eric Nielson (Senior Operations Manager), Michael Del Monte (Operations Manager), Tony Janssen (Senior Operations Manager)	Review during management review meeting. No changes.
2011-09-15	Review	Amanda Dubuc (PCT), Ilona Bruneau (PCT), Eric Nielson (Senior Operations Manager), Michael Del Monte (Operations Manager), Tony Janssen (Senior Operations Manager), Claude Mongrain (ORO)	Review during Internal Audit. No changes.
2011-12-20	Review	Amanda Dubuc (PCT), Eric Nielson (Senior Operations Manager), Michael Del Monte (Operations Manager), Tony Janssen (Senior Operations Manager)	Review during management review meeting. No changes.
2012-08-30	Risk Assessment	Amanda Dubuc (PCT), Claude Mongrain (ORO)	Conducted risk assessment. Several changes; see revision history.
2012-12-04	Review	Amanda Dubuc (PCT), Eric Nielson (Senior Operations Manager), Michael Del Monte (Operations Manager), Tony Janssen (Senior Operations Manager)	Review during management review meeting. No changes.
2013-09-26	Review	Amanda Dubuc (PCT), Patrick Dinel (Operator)	Review during Internal Audit. Changes to Table 2.
2013-10-29	Risk Assessment	Amanda Dubuc (PCT), Claude Mongrain (ORO)	Conducted risk assessment. Several changes; see revision history.

Date of Activity	Type of Activity	Participants	Summary of Results
2014-11- 27	Review	Ilona Bruneau (PCT), Rebecca Marshall (PCT), Claude Mongrain (ORO)	Reviewed during Internal Audit.
2015-09-30	Review	Rebecca Marshall (PCT), Claude Mongrain (ORO)	Reviewed during Internal Audit – no changes/updates
2016-09-20	Risk Assessment Re-Do & Review	Rebecca Marshall (PCT), Claude Mongrain (ORO), Pat Dinel, Chris Barkhouse, Ed Hillman, Rico Guindon	Conducted risk assessment during the internal audit. See revision history for changes
2017-10-23	Review	Rebecca Marshall (PCT), Claude Mongrain (ORO)	Reviewed. No changes.
2018-10-31	Review	Joshua Gravelle (PCT), Bryce Logan (ORO)	Reviewed. See revision history for changes.

Revision History

Date	Revision	Description of Revision
2009-08-11	0	Initial risk assessment conducted
2011-09-07	1	Template revised to include 'Record of Annual Review/36-Month Risk Assessment' (Table 3)
2012-10-30	2	Added 'BCA alarm' control measure to low lift pumps, removed 'note' under polymer feed pump, added 'visual inspection of media' control measure to filter breakthrough, added 'BCA alarm' control measure to backwash system failure, added 'desludge valve failure' as a hazardous event with the filtration process step, fixed a typo under clearwell hazardous event, re-ranked the likelihood and consequence for tower out of service, added 'tower provides pressure and supply when high lifts off' control measure to high lift failure, removed 'low fuel level alarm' and re-ranked the likelihood and consequence for power failure, added 'standby power failure' as a hazardous event with the water treatment system process step, added 'Soda Ash and Polymer Feed' in Table 2 as part of the filtration process CCP, and changed Operations Manager title to Senior Operations Manager and Cluster Manager title to Operations Manager in Table 3.
2013-06-24	3	Added review during management review meeting in Table 3.
2013-08-09	4	Updated the CCP set points in Table 2 to reflect the actual set points at the water treatment plant and in response to the non-conformance item from the onsite external audit.
2013-10-29	5	Added risk assessment processes for the distribution system, as the two systems (treatment and distribution) are under one operating authority. Changed the system name to Temagami Drinking Water System.
2017-06-19	6	Added Blower failure as a hazardous event under filtration. Added spare pumps as a control measure to chlorine feed failure. Changed chlorine low set point to ≥ 0.85 from 0.82
2018-10-31	7	Updated clearwells to a critical control point and updated table 2 to include clearwell and relevant EEP/SOPs with alarm setpoints.

Summary of Risk Assessment Outcomes

Temagami South Drinking Water System

Table 1 - Risk Assessment Table

Note: Processes referred to in OP-07 Risk Assessment and OP-08 Risk Assessment Outcomes must be identified as mandatory Critical Control Points (CCPs) as applicable for all OCWA-operated facilities. Mandatory CCPs are not required to be ranked.

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
Source/Intake	Spill of biological or chemical material into Lake Temagami (Railway, highway, planes)	Contamination of source water	Monitor and sample, online raw water pH, turbidity and temperature monitoring, Site specific Environmental Emergency Procedure (EEP) for Off-site Chemical/Fuel Spill Site specific EEP for Contaminated Raw Water	3	3	9	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	Breakage/blockage of intake pipe	Loss of water supply	None – staff would take appropriate response measures - alternate intake pipe, supply from tower	1	2	2	
	Spring/fall turnover	Increased demand on process operations such as chemical optimization for changes in pH, alkalinity, temperature and turbidity.	Staff would keep higher alkalinity and make appropriate operational changes Raw Water Turbidity analyzer Treated Water Turbidity Alarms	4	2	8	
Low Lift Pumps	Low lift pump failures	Loss of water supply	Redundancy (2 pumps), scheduled maintenance activities, back-up generator for loss of power situations, alarms for power loss and low clearwell level Site specific EEP for Low Lift Pump Failure	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
Filtration Process (includes flocculation, coagulation, dual media gravity filters)	Aluminum Sulphate feed pump failure	Ineffective removal of pathogens (minimum treatment requirements not met)	Redundancy (1 back-up pump), automatic switchover, operator inspections (tank levels, calculate dosage), scheduled maintenance activities, chemical pump failure alarm Site specific EEP for Aluminum Sulphate Pump Failure				<input checked="" type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input type="checkbox"/> No
	Soda Ash feed pump failure (pre and post treatment)	Lowered pH and alkalinity, ineffective coagulation process, potential for increased turbidity and/or AWQI	Redundancy (1 back-up pump), automatic switchover, operator inspections (tank levels, calculate dosage), scheduled maintenance activities, chemical pump failure alarm				
	Polymer feed pump failure	Increased turbidity, ineffective removal of pathogens	Redundancy (1 back-up pump), automatic switchover, operator inspections (tank levels, calculate dosage), scheduled maintenance activities, chemical pump failure alarm				
	Filter breakthrough	Increased turbidity, ineffective removal of pathogens, potential for AWQI	On-line monitoring of filter effluent turbidity, alarm on high turbidity, redundancy (2 filters), second filter needs to be run in manual, regular backwashes, scheduled maintenance activities, visual inspection of media Site specific EEP for Reporting and Responding to Adverse Turbidity in Large Municipal Residential Systems				
	Backwash system failure	Increased turbidity, ineffective removal of pathogens, potential for loss of treated water supply	Pump failure alarms, on-line monitoring, scheduled maintenance activities, alternate system for backwashing (manual), BCA alarm Site specific EEP for Backwash Failure (Filters)				
	Blower Failure	Backwash System Failure and increased turbidity	Back up blower available, 2 backwash pumps (redundancy), site specific SOP for Backwash Failure				

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
	Turbidity meter failure	Unknown turbidity levels, potential for AWQI	Filter redundancy (take filter out of service until analyzer replaced/repared), scheduled maintenance activities, in-house readings, operator inspections				
	Desludge valve failure	Plugged filter and potentially high turbidity	Manually open valve, turbidity monitoring, turbidity alarm, operator maintenance checks				
Clearwells	Low level	Inadequate contact time for primary disinfection Inadequate treated water supply	Redundancy (2 clearwells), schedule maintenance and inspection activities, low level clearwell alarm, town ordered water conservation or ban Site specific EEP for Water Supply Shortage				<input checked="" type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input type="checkbox"/> No
	Clearwell out of service for repair, maintenance	Inadequate contact time for primary disinfection	Three-celled clearwell with isolation valves, increase chlorine dosage into clearwell, schedule controlled maintenance plan				
Sodium Hypochlorite System (for primary disinfection)	Chlorine feed pump failure	Loss of disinfection Low chlorine residual Inadequate inactivation of pathogens Potential for AWQI	Redundancy (1 standby and 1 back-up pumps), on-line monitoring with alarms, in-house residual testing and dosage calculations, scheduled maintenance activities, spare pumps with the hub Site specific EEP for Chlorine Pump Failure, Site specific EEP for Low or High Chlorine Residual in Treated Water, Site specific Standard Operating Procedure (SOP) for CT, EEP for Reporting and Responding to Adverse Chlorine Residuals in Large Municipal Residential Systems, Contingency Plan for Adverse Water/Potential and/or Unsafe Water.				<input checked="" type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input type="checkbox"/> No

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
	Analyzer failure	Unknown chlorine residual levels, potential for AWQI	Low level Alarm, in-house residual testing, scheduled maintenance activities, back-up analyzers, Site specific SOP for CT, EEP for adverse chlorine residual.				
	Low supply of sodium hypochlorite	Inadequate disinfection, potential for AWQI	Operator checks, chemical available within hub				
Tower	Tower out of service for repair, maintenance	Lowered fire fighting capability	Supply water from clearwells, scheduled controlled maintenance plan, Site specific EEP for Tower Low Level	2	3	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
High Lift	High lift pump failures	Low pressure in distribution system, possible contamination due to infiltration	Redundancy (2 pumps), scheduled maintenance activities, operational control, on-line monitoring of discharge pressure, alarms for low pressure, tower provides pressure and supply when high lifts are off, Site specific EEP for High Lift Pump Failure, EEP for Low Pressure Events in the Distribution System.	2	3	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Secondary Disinfection	Loss of residual in distribution	Failure to control biofilm and pathogens (longterm), AWQI	Continuous on-line monitoring of chlorine residual into the distribution system, System-wide residual testing, Regulatory scheduled maintenance (performed by municipality), Alarms for low/high chlorine residual in water entering distribution system, EEP for Reporting and Responding to Adverse Chlorine Residuals in Large Municipal Residential Systems				<input checked="" type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input type="checkbox"/> No
Water Treatment	Power failure	Loss of treated water	Back-up diesel generator	4	2	8	<input type="checkbox"/> Yes – Mandatory CCP

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
System		supply	Scheduled maintenance activities for back-up generator Low fuel level alarm (gen-set), Site specific EEP for Power Failure of Long Duration Site specific EEP for Standby Power Failure				<input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	Standby power failure	Loss of treated water supply	Power failure alarm, scheduled maintenance activities, portable generator available within 4-8 hours	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Distribution System	Adverse Water Quality Result as described in O. Reg. 170/03	Potential for unsafe drinking water	Site specific SOP Sampling Schedule EEP for Reporting and Responding to Adverse Results in Large Municipal Residential Systems (several EEPs)	3	4	12	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No – no control measures
Watermains	Watermain structural failure/breaks	Contamination, loss of pressure, loss of supply, road damage	Notification/complaints from consumers, increased demand in treated water, increase in waste water collection, SOP for main waterline and waterline repair	4	2	8	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Valves	Failure	Loss of control, line breaks and/or contamination, loss of water supply	Maintenance program, Response to consumer complaints	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Flushing (clean out pipes, remove accumulation)	Failure to flush	Contamination, loss of supply, loss of fire protection	Maintenance program, Training, Procedures for flushing	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Connection, hydrants, valves, constructions, etc.	Accident, vandalism	Contamination, loss of supply	Inspection, Notification/complaints from consumers, Increase in water/wastewater usage	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
							<input checked="" type="checkbox"/> No
Service Connections	Cross connection	Contamination	Consumer notification/complaints Distribution system microbiological testing	1	4	4	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	Structural failure/breaks	Contamination, loss of pressure, loss of supply	Consumer notification/complaints	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Maintain System Pressure	Major fire	Contamination, loss of pressure	Emergency management, Notification by fire department for major fires,	3	1	3	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
New Construction	Sub-standard construction and/or commissioning	Contamination	AWWA guidelines, testing, Provincial Standard Inspection, training	1	4	4	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
Temporary Water Distribution System (temporary system put in place during construction)	Infiltration	Contamination	AWWA guidelines, testing, Provincial Standard Inspection, training	1	4	4	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No

Table 2 - Identified Critical Control Points (CCPs)

CCP	Critical Control Limits	Monitoring Procedures	Response, Reporting and Recording Procedures
Filtration Process	<p>Alum, Soda Ash and Polymer Feed Both pumps fail an alarm is initiated</p> <p>Filter Effluent Turbidity Alarms (Filters 1-2) High set point = 1.0 NTU</p>	<ul style="list-style-type: none"> SCADA (continuous online analyzers) Daily operator checks including dosage calculations Redundancy (2 filters) Trend review and sign-off as per O. Reg. 170/03 	<p>Refer to:</p> <ul style="list-style-type: none"> Site specific EEP for Reporting and Responding to Adverse Turbidity in Large Municipal Residential Systems Site specific EEP for Backwash Failure (Filters)
Sodium Hypochlorite System (Chemical Feed)	<p>Free Chlorine Residual Alarms - Treated Alarms Low set point ≥ 1.0 mg/L High set point = 3.50 mg/L</p>	<ul style="list-style-type: none"> SCADA (continuous online analyzers) Daily operator checks including dosage calculations Trend review and sign-off as per O. Reg. 170/03 	<p>Refer to:</p> <ul style="list-style-type: none"> Site specific SOP for CT Site specific EEP for Chlorine Pump Failure Site specific EEP for Low or High Chlorine Residual in Treated Water EEP for Reporting and Responding to Adverse Chlorine Residuals in Large Municipal Residential Systems
Clearwell	<p>Clearwell Level Alarms – Plant Clearwell No. 1+2: Low set point = 2.20 m High set point = 3.40 m</p>	<ul style="list-style-type: none"> SCADA (continuous online analyzers) Daily operator checks Trend review and sign-off as per O. Reg. 170/03 	<ul style="list-style-type: none"> Site specific SOP for CT Site specific EEP for Water Supply Shortage CP for Unsafe Water
Secondary Disinfection	<p>Free Chlorine Residual - Distribution Low = 0.05 mg/L High = 4.0 mg/L</p>	<ul style="list-style-type: none"> Distribution chlorine residuals monitored as per O. Reg. 170/03 	<p>Refer to:</p> <ul style="list-style-type: none"> EEP for Reporting and Responding to Adverse Chlorine Residuals in Large Municipal Residential Systems.

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 a year. In addition, the risk assessment must be conducted at least once every thirty-six months. Refer to OP-07 and OP-08.


Date of Activity	Type of Activity	Participants	Summary of Results
2009-08-11	Risk Assessment	Amanda Dubuc (PCT), Ilona Bruneau (PCT), Michael Del Monte (Operations Manager), Ed Hillman (ORO)	Conducted initial risk assessment.
2009-08-31	Review	Amanda Dubuc (PCT)	Desktop review prior to submission of Partial Accreditation application. No changes.
2010-07-13	Review	Amanda Dubuc (PCT), Eric Nielson (Senior Operations Manager)	Review during Internal Audit. No changes.
2010-10-14	Review	Amanda Dubuc (PCT), Eric Nielson (Senior Operations Manager), Michael Del Monte (Operations Manager), Tony Janssen (Senior Operations Manager)	Review during management review meeting. No changes.
2011-09-15	Review	Amanda Dubuc (PCT), Ilona Bruneau (PCT), Eric Nielson (Senior Operations Manager), Michael Del Monte (Operations Manager), Tony Janssen (Senior Operations Manager), Claude Mongrain (ORO)	Review during Internal Audit. No changes.
2011-12-20	Review	Amanda Dubuc (PCT), Eric Nielson (Senior Operations Manager), Michael Del Monte (Operations Manager), Tony Janssen (Senior Operations Manager)	Review during management review meeting. No changes.
2012-08-30	Risk Assessment	Amanda Dubuc (PCT), Claude Mongrain (ORO)	Conducted risk assessment. Several changes; see revision history.
2012-12-04	Review	Amanda Dubuc (PCT), Eric Nielson (Senior Operations Manager), Michael Del Monte (Operations Manager), Tony Janssen (Senior Operations Manager)	Review during management review meeting. No changes.
2013-09-26	Review	Amanda Dubuc (PCT), Patrick Dinel (Operator)	Review during Internal Audit. Changes to Table 2.
2013-10-29	Risk Assessment	Amanda Dubuc (PCT), Claude Mongrain (ORO)	Conducted risk assessment. Several changes; see revision history.

2014-11-27	Review	Ilona Bruneau (PCT), Rebecca Marshall (PCT), Claude Mongrain (ORO)	Reviewed during Internal Audit. No changes
2015-09-30	Review	Rebecca Marshall (PCT), Claude Mongrain (ORO)	Reviewed during Internal Audit – no changes/updates
2016-09-20	Risk Assessment Re-Do & Review	Rebecca Marshall (PCT), Claude Mongrain (ORO), Pat Dinel, Chris Barkhouse, Ed Hillman, Rico Guindon	Conducted risk assessment during the internal audit. See revision history for changes
2017-09-19	Review	Rebecca Marshall (PCT), Claude Mongrain (ORO)	Reviewed. No changes.
2018-10-31	Review	Joshua Gravelle (PCT), Bryce Logan (ORO)	Reviewed. No changes.

Revision History

Date	Revision	Description of Revision
2009-08-11	0	Initial risk assessment conducted
2011-09-07	1	Template revised to include 'Record of Annual Review/36-Month Risk Assessment' (Table 3)
2012-10-30	2	Removed 'beaver activity/lagoon surcharge' and added 'online pH, temperature and turbidity monitoring' in the source/intake process step, removed 'note' under polymer feed pump, added 'visual inspection of media, second filter has to be run in manual' control measure to filter breakthrough, added 'BCA alarm' control measure to backwash system failure, added 'desludge valve failure' as a hazardous event with the filtration process step, changed clearwell redundancy from 3 to '2', fixed a typo under clearwell hazardous event, added 'reporting procedures' control measure to the sodium hypochlorite process step, re-ranked the likelihood and consequence for tower out of service, added 'tower provides pressure and supply when high lifts off' control measure to high lift failure, removed 'low fuel level alarm' and re-ranked the likelihood and consequence for power failure, added 'standby power failure' as a hazardous event with the water treatment system process step, added 'Soda Ash and Polymer Feed' in Table 2 as part of the filtration process CCP, and changed Operations Manager title to Senior Operations Manager and Cluster Manager title to Operations Manager in Table 3.
2013-06-24	3	Added review during management review meeting to Table 3.
2013-08-09	4	Updated the CCP set points in Table 2 to reflect the actual set points at the water treatment plant and in response to the non-conformance item from the onsite external audit.
2013-10-29	5	Added risk assessment processes for the distribution system, as the two systems (treatment and distribution) are under one operating authority. Changed the system name to Temagami Drinking Water System.
2017-06-19	6	Added Blower failure as a hazardous event under filtration. Added spare pumps as a control measure to chlorine feed failure. Changed chlorine low set point to ≥ 1.0 from 0.92.

Date	Revision	Description of Revision
2018-10-31	7	Updated clearwells to a critical control point and updated table 2 to include clearwell and relevant EEP/SOPs with alarm setpoints.

 Ontario Clean Water Agency	OPERATIONAL PLAN Temagami Drinking Water Systems	QEMS Proc.: OP-09 Rev Date: 2019-07-10 Rev No: 0 Pages: 1 of 7
ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

1. Purpose

To document the following for the Temagami 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 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 Temagami Drinking Water Systems are owned by the Corporation of the Municipality of Temagami, represented by the Mayor, Treasurer/Administrator and Council.

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

3.2 Top Management

Top Management for the Temagami Drinking Water Systems consists of:

- Operations Management – Temiskaming Shores Cluster
- Regional Hub Manager – Northeastern Ontario Regional Hub
- Safety, Process & Compliance Manager – Northeastern Ontario Regional Hub

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Reviewed by: R. Marshall, PCT

Approved by: Y. Rondeau, SPC Manager

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

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

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

3.3 Corporate Oversight

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

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

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

ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES

Reviewed by: R. Marshall, PCT

Approved by: Y. Rondeau, SPC Manager

3.4 Regional Hub Roles, Responsibilities and Authorities

QEMS roles, responsibilities and authorities of Northeastern Ontario 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 Regional Hub

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



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Reviewed by: R. Marshall, PCT

Approved by: Y. Rondeau, SPC Manager

Role	Responsibilities and Authorities
Safety, Process & Compliance (SPC) Manager (Top Management)	<ul style="list-style-type: none">• Supervise facility compliance staff and provide technical and program support to the Regional Hub related to process control and compliant operations• Fulfill role of Top Management• Ensure corporate/regional QEMS programs and procedures are implemented consistently throughout the Regional Hub• Assist in the development of site-specific operational procedures as required• Ensure training on applicable legislative and regulatory requirements and the QEMS is provided for the Regional Hub (in consultation with Operations Management as required)• Monitor and report to the Regional Hub Manager and Operations Management on the compliance status and QEMS performance within his/her Regional Hub and any need for improvement• Act as alternate QEMS Representative (when required)
Process & Compliance Technician - PCT (QEMS Representative)	<ul style="list-style-type: none">• Implement, monitor and support corporate programs relating to environmental compliance and support management by evaluating and implementing process control systems at his/her assigned facilities• Fulfill role of QEMS Representative (OP-04)• Monitor, evaluate and report on compliance/quality status of his/her assigned facilities• Implement facility-specific QEMS programs and procedures consistently at his/her assigned facilities• Participate in audits and inspections and assist in developing, implementing and monitoring action items to respond to findings• Report to the SPC Manager on QEMS implementation and identify the need for additional/improved processes and procedures at the regional/cluster/facility level (in consultation with the Operations Management as required)• Communicates to Owners on facility compliance and DWQMS accreditation as directed• Deliver/participate in/coordinate training including applicable legislative and regulatory requirements and the QEMS
Team Lead Operations & Maintenance	<ul style="list-style-type: none">• Perform duties as assigned by the Senior Operations Manager• Oversee maintenance activities on equipment and process in order to maintain compliance with applicable legislation, regulations, approvals and established operating procedures• Prepare and/or coordinate staff work assignments and follow up to ensure completion• Manage the On-Call & Vacation schedules• Recommend changes in operating procedures/processes to improve facility operations• Assist with facility operations including monitoring facility processes,



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ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES

Reviewed by: R. Marshall, PCT

Approved by: Y. Rondeau, SPC Manager

Role	Responsibilities and Authorities
	<ul style="list-style-type: none">reviewing process data and trouble-shooting• Meet with clients regularly• Meet with the Health and Safety representative regularly and manage any health & Safety issues• Acts as Overall Responsible Operator (ORO).• May act as Operator-in-Charge (OIC)
Team Lead - Capital	<ul style="list-style-type: none">• Perform duties as assigned by the Senior Operations Manager• Plan and oversee capital projects• Ensure capital projects comply with applicable legislation, regulations, approvals and established operating procedures• Coordinate staffing with Operations & Maintenance Team Lead• Assist with facility operations including monitoring facility processes, reviewing process data and trouble-shooting• Perform Operations & Maintenance Team Lead responsibilities as required• Acts as Overall Responsible Operator (ORO).• May act as Operator-in-Charge (OIC)
Overall Responsible Operator (ORO)	<ul style="list-style-type: none">• Fulfill duties assigned by the Senior Operations Manager• Participate as a technical advisor to staff and management and provide specialized training on technical or other issues.• Prepare and/or coordinate staff work assignments and follow up to ensure completion• Assist management in providing recommendation for annual capital forecasts and gathering information for operational reports as required• Assist with facility operations including monitoring facility processes, reviewing process data and trouble-shooting• Oversee maintenance activities on equipment and process in order to maintain compliance with applicable legislation, regulations, approvals and established operating procedures• Assist in the preparation of facility manuals and documenting operating processes and procedures for staff• Actively participate in the development and maintenance of facility emergency plans and assist with emergencies as required.• Act for management during vacations or periodic absences.• Perform duties of Operator/Mechanic as required• Maintain the facility log book according to regulatory requirements• May act as Operator-in-Charge (OIC)
Operator and Operator/Mechanic	<ul style="list-style-type: none">• Perform duties as assigned by Operations Management or designate• Monitor, maintain and operate facilities in accordance with applicable regulations, approvals and established operating procedures

ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES


Reviewed by: R. Marshall, PCT

Approved by: Y. Rondeau, SPC Manager

Role	Responsibilities and Authorities
	<ul style="list-style-type: none"> Collect samples and perform laboratory tests and equipment calibrations as required Regularly inspect operating equipment, perform routine preventive maintenance and repairs and prepare and complete work orders as assigned Participate in facility inspections and audits May act as Operator-in-Charge (OIC) and/or Overall Responsible Operator (ORO) when required. Refer to ORO Letter
Instrumentation Technician	<ul style="list-style-type: none"> Provide advice and technical expertise on the services required for process control and automation systems 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 Conduct inspections of the process control and automation systems to validate that all is operating within established parameters as requested Install and commission new electrical/electronic equipment and automation systems May act as Operator-in-Charge (OIC)
Electronics Technician	<ul style="list-style-type: none"> Perform repairs, inspections, calibrations, preventive maintenance and/or scheduled maintenance on electrical systems, equipment, components and devices in accordance with established procedures and record the maintenance data Monitor facility processes through visual inspection, the SCADA system or by taking readings from the process control equipment Operate and adjust equipment/processes to maintain compliance with applicable legislation, regulations, approvals and established operating procedures May act as Operator-in-Charge (OIC)

4. Related Documents

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

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Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

5. Revision History

Date	Revision #	Reason for Revision
2019-07-10	0	<p>Procedure issued – Information within OP-09 (s. 3) was originally set out in main body of the Temagami Drinking Water Systems Operational Plan (revision 7, dated June 19, 2017). 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. Removed foreman and added O&M and capital Team Lead positions</p>

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COMPETENCIES		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC 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 Senior Operations Manager and/or Operations Manager that directly oversees a facility's operations

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

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

3. Procedure

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

Position	Required Minimum Competencies
Operations Management	<ul style="list-style-type: none"> • Valid operator certification • Experience and/or training in managing/supervising drinking water system operations, maintenance, financial planning and administration • Training and/or experience related to drinking water system processes, principles and technologies • Training on OCWA's QEMS and the DWQMS • Training on relevant legislation, regulations, codes, policies, guidelines and procedures • Experience using computers and operational computerized systems

COMPETENCIES

Reviewed by: R. Marshall, PCT

Approved by: Y. Rondeau, SPC Manager

Position	Required Minimum Competencies
Safety, Process & Compliance (SPC) Manager	<ul style="list-style-type: none"> Valid operator certification Experience in providing technical support and leading/managing programs related to process control and compliant operations Experience and/or training in conducting compliance audits, and management system audits Experience and/or training in preparing and presenting informational and training material Training on OCWA's QEMS and the DWQMS Training on relevant legislation, regulations, codes, policies, guidelines and procedures Experience using computers and operational computerized systems
Process & Compliance Technician (PCT)	<ul style="list-style-type: none"> Valid operator certification Experience and/or training in resolving/addressing compliance issues for drinking water systems Experience and/or training in monitoring, assessing and reporting on facility performance against legal requirements and corporate goals Experience and/or training in preparing and presenting informational and training material Experience in conducting management system audits or internal auditor education/training Training on OCWA's QEMS and the DWQMS Training on relevant legislation, regulations, codes, policies, guidelines and procedures Experience using computers and operational computerized systems
Team Lead	<ul style="list-style-type: none"> Valid operator certification Experience leading/directing operations personnel, and providing technical guidance to resolve operational issues Training and experience in inspecting and monitoring drinking water system processes and performing/planning maintenance activities Training on OCWA's QEMS and the DWQMS Training on relevant legislation, regulations, codes, policies, guidelines and procedures Experience using computers and operational computerized systems
Overall responsible Operator (ORO)	<ul style="list-style-type: none"> Valid operator certification Experience leading/directing operations personnel, and providing technical guidance to resolve operational issues Training and/or experience related to operations and maintenance of drinking water system processes, principles and technologies Training on OCWA's QEMS and the DWQMS Training on relevant legislation, regulations, codes, policies, guidelines and procedures Experience using computers and operational computerized systems
Operator and Operator/Mechanic	<ul style="list-style-type: none"> Valid operator certification Training and/or experience in inspecting and monitoring drinking water

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COMPETENCIES		
Reviewed by: R. Marshall, PCT		Approved by: Y. Rondeau, SPC Manager

Position	Required Minimum Competencies
	system processes and performing/planning maintenance activities <ul style="list-style-type: none"> • Training on OCWA's QEMS and the DWQMS • Training on relevant legislation, regulations, codes, policies, guidelines and procedures • Experience using computers and operational computerized systems
Instrumentation Technician	<ul style="list-style-type: none"> • Valid operator certification • Experience and/or training in monitoring, programming, installing and troubleshooting network, hardware, software and instrumentation • Experience and/or training in drinking water system processes, design, instrumentation, process control and automation systems • Training on OCWA's QEMS and the DWQMS • Training on relevant legislation, regulations, codes, policies, guidelines and procedures • Experience using computers and operational computerized systems
Electronic Technician	<ul style="list-style-type: none"> • Valid operator certification • Instrumentation Diploma and/or Electrical Engineering Automated Systems Diploma • Experience in performing maintenance and repair of electrical and electronic equipment • Experience and/or training in drinking water system processes design, instrumentation, process control and automation systems • Training on OCWA's QEMS and the DWQMS • Training on relevant legislation, regulations, codes, policies, guidelines and procedures • Experience using computers and operational computerized systems

- 3.2 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.
- 3.3 OCWA's Operational Training Program aims to:
- Develop the skills and increase the knowledge of staff and management;
 - Provide staff with information and access to resources that can assist them in performing their duties; and
 - Assist OCWA certified operators in meeting the legislative and regulatory requirements with respect to training.
- 3.4 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

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COMPETENCIES		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

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

- 3.5 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.
- 3.6 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.
- 3.7 Operations personnel also receive site-specific training/instruction on relevant operational and emergency response procedures to ensure effective operational control of processes and equipment which may impact the safety and quality of drinking water.
- 3.8 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.
- 3.9 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.
- 3.10 It is the responsibility of operations personnel to ensure Operations Management are aware of any change to the status/classification of their drinking water operator certificate(s), the validity of their driver's licence (required to hold at a minimum a Class G license which is initially verified upon hire) and/or the validity of any other required certificates/qualifications.
- 3.11 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.


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Reviewed by: R. Marshall, PCT		Approved by: Y. Rondeau, SPC Manager

4. Related Documents

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

5. Revision History

Date	Revision #	Reason for Revision
2019-05-28	0	<p>Procedure issued – Information within OP-10 (s. 3) was originally set out in main body of the Temagami Drinking Water Systems Operational Plan (revision 7, dated June 19, 2017). New Purpose, Definitions, Procedure, Related Documents and separate Revision History sections. Added definitions for Operations Management and Operations Personnel and throughout procedure replaced 'Senior Operations Manager' references with 'Operations Management'. Modified table in procedure (s. 3.1 and s. 3.2): removed/revised non-measurable competencies, added the word 'minimum' to competencies; removed 'Valid Class G Driver's License' listed under individual positions and referenced in s. 3.11; added competencies for SPC Manager and Data Clerk and merged competencies for Senior Operations Manager and Operations Manager under Operations Management. Updated training sections (s. 3.4 to s. 3.7) to reference new Environmental 101 course, Mandatory Compliance Training list and removed specific references to Orientation Training Program. Added s. 3.11 related to ensuring operators make Operations Management aware of changes to operator certification and other certificates/licenses. Other minor changes to wording. Removed Administration staff.</p>

 Ontario Clean Water Agency	OPERATIONAL PLAN Temagami Drinking Water Systems	QEMS Proc.: OP-11 Rev Date: 2019-05-28 Rev No: 7 Pages: 1 of 3
PERSONNEL COVERAGE		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC 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 Temagami 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 Temagami Drinking Water Systems are considered un-manned facilities. OCWA operations personnel routinely visit the system at least twice per week and monitor the facility daily using OCWA's remote monitoring SCADA system.

OCWA operators are available 24 hours a day, 7 days a week by an alarm system and cell phone.

The Municipality of Temagami Public Works staff conduct checks of the distribution system. They inform OCWA operations of any problems.

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.

Refer to the ORO Letter for current ORO and alternate.

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

* 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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- 3.4 The Senior Operations Manager and/or designate assigns an on-call operator for the time that the facility is un-staffed (i.e.: evenings, weekends and Statutory Holidays). The on-call shift rotates every Monday morning at 07:30, unless Monday is a statutory holiday in which case the change is on Tuesday morning at 07:30. The on-call schedule consists of a weekly rotation, is set on an annual basis and posted in the Haileybury WTP.
- 3.5 The on-call operator is responsible for responding to the alarm monitoring service within a reasonable time frame. Details of the call-ins are maintained electronically in OCWA Workplace Management System (WMS).
- 3.6 The alarm system auto dialer is programmed to contact the operator on-call. The operator on-call is responsible for responding to the alarm within a reasonable timeframe. If the nature of the alarm requires additional staff, the on-call operator can request assistance from any of the other certified operators. The on-call operator records details of the call-in in the facility logbook and on the Call-In Report form.
- 3.7 The Senior Operations Manager and/or designate is responsible for approving vacation time for staff in a manner which ensures sufficient personnel are available for the performance of normal operating duties.
- 3.8 OCWA's Operations staff are represented by the Ontario Public Service Employees Union (OPSEU). In the event of a labour disruption, the Operations Manager, together with the union, identifies "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 to staff in the event that there is a severe shortage of staff due to sickness (e.g., pandemic flu) or other unusual situations where personnel might not be available.

4. Related Documents

Call-In Reports (WMS)
Critical Shortage of Staff Contingency Plan (Facility Emergency Plan)
Facility Logbook
Facility Round Sheets
On-Call Schedule
ORO Letter
Vacation Schedule
OP-10 Competencies

5. Revision History

Date	Revision	Reason for Revision
2009-08-31	0	Procedure issued
2011-09-07	1	Procedure 5.9 was added to reference contingency planning for Critical Shortage of Staff



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Approved by: Y. Rondeau, SPC Manager

Date	Revision	Reason for Revision
2013-03-13	2	Revised position titles; Operations Manager has been changed to Senior Operations Manager, Cluster Manager has been changed to Operations Manager, Operator has been changed to Operator, and Process Compliance Manager has been removed as the position was discontinued. Changed the coverage start time from 08:00 to 07:30.
2013-10-29	3	Changed name of system to Temagami Drinking Water System to include the distribution system. Added details about the role of the Municipality of Temagami Public Works staff to section 5.2.
2019-05-28	4	QP-03 procedure renamed OP-11. Removed Scope and Responsibilities sections. Other minor edits in wording.

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COMMUNICATIONS		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC 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 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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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 SPC 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 Regional Hub Manager, Operations Management and SPC Manager ensures that the Owner is provided with QEMS updates and that they are kept informed of the status of the facility's operational and compliance performance during regularly scheduled meetings and/or through electronic and/or verbal communications. The QEMS Representative assists in the coordination of these meetings and with communicating the updates as directed.

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

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3.5 Communications with Essential Suppliers and Service Providers:

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 Kirkland Lake Wastewater Treatment Plant and the Kirkland Lake Process and Compliance Office.

3.6.3 Facility tours of interested parties must be approved in advance by the Owner. A record of any tour is made in the facility logbook.


3.6.4 All complaints, whether received from the consumer, the community or other interested parties, are documented on a Community Complaint form. As appropriate, Operations Management or designate 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


Community Complaint Form
 Emergency Response Plan
 Facility Emergency Plan
 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

5. Revision History

Date	Revision	Reason for Revision
2009-08-31	0	Procedure issued
2011-09-07	1	Correction of some employee titles and update to Procedure 5.2

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COMMUNICATIONS		
Reviewed by: R. Marshall, PCT		Approved by: Y. Rondeau, SPC Manager

Date	Revision	Reason for Revision
		to include information how revisions are communicated
2013-03-13	2	Revised position titles; Operations Manager has been changed to Senior Operations Manager, Cluster Manager has been changed to Operations Manager, Operator has been changed to Operator, and Process Compliance Manager has been removed as the position was discontinued
2013-10-29	3	Changed name of system to Temagami Drinking Water Systems to include the distribution system
2017-06-19	4	Added quarterly operations report to Related Documents
2019-05-28	5	QP-04 procedure renamed OP-12. Removed Scope and Responsibilities sections. Added definitions for Operations Management and Operations Personnel. Reordered and created separate sections to clarify communications to each of the 4 parties. Clarified suppliers were those listed as essential as per Element 13 (as per DWQMS v. 2.0) and replaced references to Senior Operations Manager with 'Operations Management'. Updated training sections for OCWA personnel (s. 3.3.1 to s. 3.3.4) to reference new Environmental Compliance 101 course completed within first year of hire and to outline how training is coordinated between SPC Manager/Operations Management, and QEMS Representative. Included sections on R&Rs for performance reporting within OCWA (s. 3.3.7 to s. 3.3.9) and to Client (3.4.1). Replaced identification of media spokesperson (s. 3.6.1) with 'as identified in Facility Emergency Plan'. Added reference to site-specific records/documents used for recording tours (s. 3.6.3). Other minor edits.

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ESSENTIAL SUPPLIES AND SERVICES		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC 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 Temagami Drinking Water Systems are contained in the Facility Emergency Plan on the Essential Supplies and Services List. The list is reviewed at least once every calendar year by the QEMS Representative and updated as required.

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 & Parks (MECP) has an agreement with The Canadian Association for Laboratory Accreditation (CALA) for accreditation of laboratories testing drinking water. The QEMS Representative is



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responsible for notifying the MECP of any change to the drinking water testing services being utilized.

- 3.6 Internal verification and calibration activities (e.g. chlorine analyzer, turbidimeter, flowmeters, 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, if required 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

ANSI/NSF Documentation
AWWA Standards
Calibration Certificates/Records
Essential Supplies and Services List
Municipal Drinking Water Licence (MDWL)
OP-17 Measurement Recording Equipment Calibration and Maintenance

5. Revision History

Date	Revision	Reason for Revision
2009-08-31	0	Procedure issued
2011-09-07	1	Addition of Procedure 5.3 clarifying how suppliers are informed of relevant aspects of OCWA's QEMS
2013-03-13	2	Revised position titles; Operations Manager has been changed to Senior Operations Manager, Cluster Manager has been changed



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ESSENTIAL SUPPLIES AND SERVICES

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Approved by: Y. Rondeau, SPC Manager

		to Operations Manager, Operator has been changed to Operator, and Process Compliance Manager has been removed as the position was discontinued.
2013-06-20	3	Added statement to ensure that received product and services are verified upon receipt and prior to use, see procedure 5.9.
2013-10-29	4	Changed name of system to Temagami Drinking Water Systems to include the distribution system
2019-05-28	5	QP-05 procedure renamed OP-13. Removed Scope and Responsibilities sections. Changes to wording to provide clarification on ensuring quality of essential supplies and services (s. 3.5, 3.6, 3.7 and 3.9).

	<p style="text-align: center;">OPERATIONAL PLAN Temagami Drinking Water Systems</p>	<p>QEMS Proc.: OP-14 Rev Date: 2019-05-28 Rev No: 4 Pages: 1 of 2</p>
REVIEW AND PROVISION OF INFRASTRUCTURE		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

1. Purpose

To describe OCWA's procedure for reviewing the adequacy of infrastructure necessary to operate and maintain the Temagami 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
- QEMS Audit Reports

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

3.3 The output of the review is a 5 year rolling Recommended Capital and Major Maintenance Report to assist the Owner and OCWA with planning infrastructure needs for the short and long-term. A letter, summarizing capital works recommendations and estimated expenditures for the upcoming year, is submitted to the Owner for review and approval. A capital letter is submitted, at least once every calendar year by Operations Management.

3.4 The final approved capital items form 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: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

4. Related Documents

Capital and Major Maintenance Recommendations Report
Capital Letter & Acknowledgement/Approval from the Owner
Management Review Minutes
OP-08 Risk Assessment Outcomes
OP-15 Infrastructure Maintenance, Rehabilitation and Renewal
OP-20 Management Review

5. Revision History

Date	Revision	Reason for Revision
2009-08-31	0	Procedure issued
2011-09-07	1	Revised to include the position of Process Compliance Manager
2013-03-13	2	Revised position titles; Operations Manager has been changed to Senior Operations Manager, Cluster Manager has been changed to Operations Manager, Operator has been changed to Operator, and Process Compliance Manager has been removed as the position was discontinued.
2013-10-29	3	Changed name of system to Temagami Drinking Water Systems to include the distribution systems.
2019-05-28	4	QP-06 procedure renamed OP-14. Removed Scope and Responsibilities sections. Replaced 'once every 12 months' with 'once every calendar year' (s. 3.1) to reflect wording in DWQMS v. 2.0. Added s. 3.2 to consider the outcomes of the risk assessment under Element 8 during the review to reflect wording in DWQMS v. 2.0. Changes to wording to provide clarification on who is required to attend the review and what documents and records may be considered during the review (s. 3.1). Linked the procedure with OP-15 in terms of documenting a long-term forecast (s. 3.3 and s. 3.4).

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INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

1. Purpose

To describe OCWA's infrastructure maintenance, rehabilitation and renewal program for the Temagami 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:

- Inspect, adjust and calibrate process control equipment to ensure proper operation of water systems, pumps, chemical feeders, and all other equipment installed at the facilities.
- Inspect reservoir
- Perform routine maintenance duties to equipment including checking machinery and electrical equipment when required.
- Perform routine maintenance of the distribution system (flushing and valve cycling)
- Maintain an inventory of all equipment
- 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

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INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

- Access maintenance records and asset histories.

Planned maintenance activities are communicated to the person responsible for completing the task through the issuance of WMS work orders. Work orders are automatically generated on a daily, weekly, monthly, quarterly and annual schedule as determined based on manufacturer's recommendations and site specific operational and maintenance needs and are assigned directly to the appropriate operations personnel. This schedule is set up by a Team Lead. 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 Team Leads maintain the inventory of equipment in WMS and ensures that appropriate maintenance plans are in place. Maintenance plans are developed according to the manufacturer's instructions, regulatory requirements, industry standards, and/or client service requirements. Equipment Operation and Maintenance (O&M) manuals are accessible to operations personnel at the locations specified in OP-05 Document and Records Control.

3.1.2 Unplanned Maintenance


Unplanned maintenance is conducted as required. All unplanned maintenance activities are authorized by the Operations Management. Unplanned maintenance activities are recorded in the facility's logbook and as corrective/emergency work order 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 (i.e. rolling 5-year) list of major maintenance recommendations. (Refer to OP-14 Review and Provision of Infrastructure).

3.1.4 Program Monitoring and Reporting

Maintenance needs for the 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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review of the drinking water system's infrastructure to assess its adequacy for the operation and maintenance of the system. (Refer to OP-14 Review and Provision of Infrastructure).

To assist in monitoring the effectiveness of the program Operations Management (or designate) is provided monthly summary reports which are automatically generated and emailed from WMS.


3.2 OCWA's infrastructure maintenance, rehabilitation and renewal program is initially communicated to the Owner through the operating agreement. OCWA's program is communicated to the Owner on an on-going basis through quarterly reports and at a minimum once every calendar year through submission of the capital letter and the results of the Management Review.

4. Related Documents

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

5. Revision History

Date	Revision #	Reason for Revision
2019-05-28	0	Procedure issued – Information within OP-15 (s. 3) was originally set out in main body of the Temagami Drinking Water System Operational Plan (last revision 7, dated June 19, 2017). New Purpose, Definitions, Procedure, Related Documents and separate Revision History sections. Added the requirement to ensure the long term forecast is reviewed at once every calendar year and to document a long term forecast (s. 3.1.3) to reflect in DWQMS v. 2.0. Minor wording updates to reflect OCWA's current WMS.

 Ontario Clean Water Agency	<p style="text-align: center;">OPERATIONAL PLAN Temagami Drinking Water Systems</p>	QEMS Proc.: OP-16 Rev Date: 2019-06-10 Rev No: 6 Pages: 1 of 4
SAMPLING, TESTING AND MONITORING		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC 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-06A and OP-06B Drinking Water System

3. Procedure

- 3.1 All sampling, monitoring and testing is conducted at a minimum in accordance with SDWA O. Reg. 170/03 and the facility's Municipal Drinking Water License (MDWL).
- 3.2 Sampling requirements for the facility are defined in the facility's sampling schedule which is available to operations personnel, at the location(s) noted in OP-05 Document and Records Control. The sampling schedule is maintained by the 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 laboratory(ies) used for this facility are listed in the Essential Supplies and Services List (within the Facility Emergency Plan (FEP)).


Electronic and/or hardcopy reports received from the laboratory are maintained as per OP-05 Document and Records Control. Analytical results from laboratory reports are uploaded into OCWA's Process Data Management system (PDM).

- 3.4 Continuous monitoring equipment is used to sample and test for the following parameters related to process control and finished drinking water quality:
 Temagami North DWS

- Temperature – raw water
- Turbidity – raw water, filter 1 & 2 effluent, discharge
- Free chlorine residual – treated water
- pH – raw water and treated water
- Discharge pressure – treated/distribution water (point of entry)
- Flow rates – raw water, filter 1 & 2 effluent, backwash and treated water
- Levels – clearwell 1, 2 & 3 and tower

Temagami South DWS

- Temperature – raw water

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SAMPLING, TESTING AND MONITORING		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

- Turbidity – raw water, filter 2 effluent, discharge
- Free chlorine residual – treated water
- pH – raw water and treated water
- Discharge pressure – treated/distribution water (point of entry)
- Flow rates – raw water, filter 2 effluent, backwash and treated water
- Levels – clearwell 1 & 2, sump, waste pit, tower


Test results from continuous monitoring equipment are captured by OCWA's SCADA system and are reviewed by a certified operator in accordance with the requirements of SDWA O. Reg. 170/03.

- 3.5 Adverse water quality incidents are responded to and reported as per Environmental Emergency Procedures (EEPs) found in the Facility Emergency Plan Binder.
- 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
Alkalinity	Raw water Process water	Grab weekly
Aluminum Residual	Treated water	Grab weekly
Aluminum Sulphate Usage	Chemical room	Bi-weekly reading
Colour	Treated water	Grab weekly
Free Chlorine Residual	Treated water Distribution water (various locations)	Grab weekly
Sodium Hypochlorite Usage	Chemical room	Bi-weekly reading
Soda Ash Usage	Chemical room	Bi-weekly reading
Turbidity	Process water	Grab monthly

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

- 3.7 Additional sampling, testing and monitoring activities related to the facility's most challenging conditions are captured in the existing in-house program as described above.
- 3.8 There are no relevant upstream sampling, testing and monitoring activities that take place for this facility/system.
- 3.9 Sampling, testing and monitoring results are readily accessible to the Owner at the Kirkland Lake Process and Compliance office and/or the Municipal Office.

 Ontario Clean Water Agency	OPERATIONAL PLAN Temagami Drinking Water Systems	QEMS Proc.: OP-16 Rev Date: 2019-06-10 Rev No: 6 Pages: 3 of 4
SAMPLING, TESTING AND MONITORING		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

The owner is provided a Quarterly Operations Reports which discusses regulatory results and operational issues. Owners are also provided with an annual summary of sampling, testing and monitoring results through the SDWA O. Reg. 170/03 Section 11 - Annual Report, Schedule 22 - Municipal Summary Report and through the Management Review process outlined in OP-20 Management Review.


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

4. Related Documents

Annual Report (O. Reg. 170 Section 11)
 Facility Emergency Plan (FEP) Binder
 Facility Logbook
 Facility Round Sheets
 Laboratory Analysis Reports
 Laboratory Chain of Custody Forms
 Municipal Summary Report (O. Reg. 170 Schedule 22)
 Process Data Management System (PDM)
 Quarterly Operations Reports
 Reporting and Responding to Adverse Results (EEPs)
 Sampling Schedule
 OP-05 Document and Records Control
 OP-06 Drinking Water System
 OP-20 Management Review


5. Revision History

Date	Revision	Reason for Revision
2009-08-31	0	Procedure issued
2011-09-07	1	Addition of Process and Compliance Manager (3.0 Responsibility) and clarification of sampling under 5.0 Procedure
2013-03-13	2	Revised position titles; Operations Manager has been changed to Senior Operations Manager, Cluster Manager has been changed to Operations Manager, Operator has been changed to Operator, and Process Compliance Manager has been removed as the position was discontinued.
2013-10-29	3	Updated the name of the system to Temagami Drinking Water System to include the distribution systems
2015-02-05	4	Added Monthly Reports as a means of communicating to the client and included them as a Related Document
2017-06-19	5	References made to PDC have been replaced with the new program WISKI, Changed Monthly Report to Client Report.
2019-06-10	6	QP-07 procedure renamed OP-16. Removed Scope and

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SAMPLING, TESTING AND MONITORING		
Reviewed by: R. Marshall, PCT		Approved by: Y. Rondeau, SPC Manager

Date	Revision	Reason for Revision
		Responsibilities sections. Updated s. 3.1 to reference Municipal Drinking Water License and s. 3.2 to reference sampling calendar/plan and removed sampling table. Expanded information related to accredited and licensed laboratories (s. 3.3). Removed pumping and static levels. Reordered some sections and other minor edits.



	<p style="text-align: center;">OPERATIONAL PLAN Temagami Drinking Water Systems</p>	<p>QEMS Proc.: OP-17 Rev Date: 2019-06-10 Rev No: 4 Pages: 1 of 2</p>
MEASUREMENT AND RECORDING EQUIPMENT CALIBRATION AND MAINTENANCE		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

1. Purpose


To describe the procedure for the calibration and/or verification and maintenance of measurement and recording equipment at the Temagami 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 Instrumentation Technician 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 a SuperUser. The new device is tagged with a unique identification number and the maintenance schedule is set up. Work orders are then automatically generated as per the schedule (refer to OP-15 Infrastructure Maintenance, Rehabilitation and Renewal).
- 3.3 Details regarding the results of the calibration and/or verification are recorded within each individual work order generated by the WMS, and in the facility logbook.
- 3.4 Calibration and maintenance activities are carried out in accordance with procedures specified in the manufacturer's manual, instructions specified in WMS or OCWA's calibration procedures.
- 3.5 Standards, reagents and/or chemicals that may be utilized during calibration and/or verification and/or maintenance activities are verified before use to ensure they are not expired. Any expired standards, reagents and/or chemicals are appropriately disposed of and are replaced with new standards, reagents and/or chemicals as applicable.
- 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 Operations Management and the ORO, as soon as possible so that immediate measures can be taken to ensure that drinking water quality has not been compromised by the malfunctioning device. Any actions taken as a result of the failure are recorded in the facility logbook and Instrumentation Calibration/Maintenance form. Operations Management or the PCT ensures that any notifications required by applicable legislation are completed and documented within the specified time period.

	<p style="text-align: center;">OPERATIONAL PLAN Temagami Drinking Water Systems</p>	<p>QEMS Proc.: OP-17 Rev Date: 2019-06-10 Rev No: 4 Pages: 2 of 2</p>
MEASUREMENT AND RECORDING EQUIPMENT CALIBRATION AND MAINTENANCE		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	


3.7 Calibration and maintenance records and maintenance/equipment manuals are maintained as per OP-05 Document and Records Control.

4. Related Documents

Calibration/Maintenance Records
Facility Logbook
Maintenance/Equipment Manuals
WMS Records
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
2009-08-31	0	Procedure issued
2011-09-07	1	Revised to include proper title for Process Compliance Manager
2013-03-13	2	Revised position titles; Operations Manager has been changed to Senior Operations Manager, Cluster Manager has been changed to Operations Manager, Operator has been changed to Operator, and Process Compliance Manager has been removed as the position was discontinued.
2013-10-29	3	Updated system name to Temagami Drinking Water Systems to include the distribution systems
2019-06-10	4	QP-08 procedure renamed OP-17. Removed Scope and Responsibilities sections. Added s. 3.3 to clarify how calibration and/or verification activities are documented. Added s. 3.5 to include how standards, reagents and/or chemicals are verified before use to ensure they are not expired. Other minor edits.

 Ontario Clean Water Agency	OPERATIONAL PLAN Temagami Drinking Water Systems	QEMS Proc.: OP-18 Rev Date: 2019-06-10 Rev No: 6 Pages: 1 of 4
EMERGENCY MANAGEMENT		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC 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 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 these drinking water systems.

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 Safety, Process and Compliance Manager and/or 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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EMERGENCY MANAGEMENT		
Reviewed by: R. Marshall, PCT		Approved by: Y. Rondeau, SPC 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 Temagami 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


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actions taken. A scheduled test of a CP may be regarded as a review of that particular CP as long as the outcomes are evaluated using the FEP-01 form. A CP-related response to an actual event may also be considered a review or a test. A review of the incident including lessons learned should be recorded on FEP-01 following the resolution of the actual event, along with any opportunities for improvement/actions identified.

- 3.7 Revisions to the CPs, SOPs and other FEP documents are made (as necessary) following a review, test, actual event or other significant change (e.g., changes in regulatory requirements, corporate policy or operational processes and/or equipment, etc.). Results of the emergency response testing and any opportunities for improvement/actions identified are considered during the Management Review (OP-20).
- 3.8 Roles and responsibilities for emergency management at OCWA-operated facilities are set out in the FEP. Specific roles and responsibilities related to a particular emergency situation or service interruption (including those of the Owner where applicable) are set out in the relevant site-specific CP. A general description of the respective responsibilities of the Owner and the operating authority in the event an emergency occurs is included in the service agreement with the Owner (as required by the *Safe Drinking Water Act*).
- 3.9 Where they exist, any relevant sections of the Municipal Emergency Response Plan (MERP) are included or referenced in the appendices section of the FEP. Measures specified in the MERP are incorporated into CPs where appropriate.
- 3.10 An emergency contact list in conjunction with the essential supplies and services list is contained within the FEP and is reviewed/updated at least once per calendar year. An emergency communications protocol is contained within the FEP. Specific notification requirements during emergency situations or service interruptions are set out in the individual CPs and in the ERP.


4. Related Documents

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

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5. Revision History

Date	Revision	Reason for Revision
2009-08-31	0	Procedure issued
2011-09-07	1	Corrected Process Compliance Manager's title
2013-03-13	2	Revised position titles; Operations Manager has been changed to Senior Operations Manager, Cluster Manager has been changed to Operations Manager, Operator has been changed to Operator, and Process Compliance Manager has been removed as the position was discontinued.
2013-06-24	3	Revised step 5.3 to state that all contingency plans must be tested over a 3 year period.
2013-10-29	4	Updated name of system to Temagami Drinking Water System to include the distribution systems.
2015-02-05	5	Updated procedure as per OCWA's revised corporate template which; reflects updates to OCWA's improved Facility Emergency Plan; References the three levels of operations-related events, OCWA's Emergency Management Program and OCWA's Emergency Communications Protocol; Clarifies training requirements in step 5.5; Updates reviewing frequencies of CPs in step 5.6; Describes when revision changes to procedures are required in step 5.7
2019-06-10	6	QP-09 procedure renamed OP-18. Removed Scope and Responsibilities sections and reordered some sections. Added definition 'Operations Management'. Throughout procedure replaced 'Senior Operations Manager' references with 'Operations Management'. Removed references to 'OCWA's Approach to Facility Emergency Planning' document throughout procedure and referenced FEP instead. Aligned wording for level 1, 2 & 3 events (s. 3.2) with wording in 'OCWA's Emergency Response Plan'. Updated training section to include role of SPC Manager (s. 3.5) and expanded testing/review section specifically to clarify how an actual test is documented (s. 3.6). Other minor edits.

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INTERNAL QEMS AUDITS		
Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC 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 Temagami 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
- To assess the effectiveness of the QEMS and assist in its continual improvement.

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

3.1.3 The criteria covered by an internal QEMS audit include:

- Drinking Water Quality Management Standard (DWQMS)
- Current Operational Plan
- QEMS-related documents and records

3.1.4 The audit scope and criteria may be customized as necessary to focus on a particular process/critical control point and/or any elements of the DWQMS which may warrant specific attention. The results of previous internal and external audits should also be considered.

3.2 Audit Frequency

3.2.1 Internal QEMS audits may be scheduled and conducted once every calendar year or may be separated into smaller audit sessions scheduled at various intervals throughout the calendar year. However, all elements of the DWQMS must be audited at least once every calendar year.

3.2.2 The QEMS Representative is responsible for maintaining the internal QEMS audit schedule. The audit schedule may be modified based on previous audit results.

3.3 Internal Auditor Qualifications

3.3.1 Internal QEMS audits shall only be conducted by persons approved by the QEMS Representative and having the following minimum qualifications:

- Internal auditor training or experience in conducting management system audits; and
- Familiarity with the DWQMS requirements.


3.3.2 Internal Auditors that do not meet the qualifications in s.3.3.1 may form part of the Audit Team for training purposes, but cannot act as Lead Auditor.

3.3.3 Internal Auditors must remain objective and, where practical, be independent of the areas/activities being audited.

3.4 Audit Preparation

3.4.1 The Lead Auditor:

- Establishes the audit objectives, scope and criteria;
- Confirms the audit logistics (locations, dates, expected time and duration of audit activities, any health and safety considerations, availability of key

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personnel, audit team assignments, etc.).

3.4.2 Each Internal Auditor is responsible for:


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

3.5 Conducting the Audit

- 3.5.1 Opening and closing meetings are not required, but may be conducted at the discretion of the QEMS Representative and the Lead Auditor taking into account expectations of Top Management.
- 3.5.2 The Audit Team gathers and records objective evidence by engaging in activities that may include conducting interviews with Operations Management and staff (in person, over the phone and/or through e-mail), observing operational activities and reviewing documents and records.
- 3.5.3 The Audit Team generates the audit findings by evaluating the objective evidence against the audit criteria (s. 3.1.3). In addition to indicating conformance or non-conformance, the audit findings may also lead to the identification of opportunities for improvement (OFIs). The Lead Auditor is responsible for resolving any differences of opinion among Audit Team members with respect to the audit findings and conclusions.

3.6 Reporting the Results

- 3.6.1 The Lead Auditor reviews the audit findings and conclusions with the QEMS Representative (if different from Lead Auditor) and Top Management. Other audit participants may also take part in this review as appropriate. This review may take place in person (e.g., during a closing meeting) or through other means (phone call, email, etc.). Any diverging opinions regarding the audit findings and conclusions should be discussed and, if possible, resolved. If not resolved, this should be noted by the Lead Auditor.
- 3.6.2 The Lead Auditor prepares a written report and/or completed work documents. The report/documents are submitted to the QEMS Representative (if different from Lead Auditor). The submitted documentation must identify (at a minimum):

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- Audit objectives, scope and criteria;
- Audit Team member(s) and audit participants;
- Date(s) and location(s) where audit activities were conducted;
- Audit findings including:
 - Related objective evidence for each element;
 - Any non-conformance identified referencing the requirement that was not met; and
 - OFIs or other observations.
- Audit conclusions.

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

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

3.7 Corrective Actions and Opportunities for Improvement (OFIs)

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

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

3.8 Record-Keeping


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

4. Related Documents


Internal Audit Records (checklists, forms, reports, etc.)
 QEMS – Summary of Findings spreadsheet
 OP-05 Document and Records Control
 OP-20 Management Review
 OP-21 Continual Improvement

5. Revision History

Date	Revision #	Reason for Revision
2009-08-31	0	Procedure issued
2011-09-07	1	Clarification of time frames in Procedure 5.1; corrected Process

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Reviewed by: R. Marshall, PCT		Approved by: Y. Rondeau, SPC Manager

Date	Revision #	Reason for Revision
		Compliance Manager's title; updated the development of audit protocol in Procedure 5.2
2013-03-13	2	Revised position titles; Operations Manager has been changed to Senior Operations Manager, Cluster Manager has been changed to Operations Manager, and Process Compliance Manager has been removed as the position was discontinued.
2013-10-29	3	Updated name of system to Temagami Drinking Water System to include the distribution system. Updated step 5.5 to include the review of opportunities for improvements (OFIs); revised step 5.6 to indicate the development of action plans for significant OFIs and the use of the QEMS–Summary of Findings form; Updated section 6.0 by removing Action Plans and adding the QEMS-Summary of Findings form
2017-06-19	4	Major revisions throughout procedure to clarify requirements for conducting internal QEMS audits, reporting results and dealing with corrective actions
2019-06-10	5	QP-10 procedure renamed OP-19. Removed Scope and Responsibilities sections and moved scope wording to purpose section. Added definition 'Objective Evidence' and modified 'non-conformance' definition. Replaced 'audit evidence' with 'objective evidence', and 'conformity' with 'conformance' throughout procedure. Replaced 'once every 12 months' with 'once every calendar year' (s. 3.2.1, s. 3.2.3 and s. 3.4.1) to reflect wording in DWQMS v. 2.0. Added s. 3.2.3 (and modified s. 3.4.1) to describe the frequency for auditing all DWSs covered in multi-facility Operational Plans. Changed s. 3.4.2 to include preventive actions, the results of the management review and the status/consideration of OFIs. Included wording 'for each element', and 'identified referencing the requirement that was not met' to s. 3.6.2. Moved description of process for corrective actions from QP-10 s. 5.7 and OFIs from QP-10 s. 5.8 to OP-21. Added s. 3.7 to refer to OP-21.

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MANAGEMENT REVIEW		
Reviewed by: R. Marshall, PCT		Approved by: Y. Rondeau, SPC 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 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 Temagami Drinking Water Systems as:


- Operations Management – Temiskaming Shores Cluster
- Regional Hub Manager – Northeastern Ontario Regional Hub
- Safety, Process & Compliance (SPC) Manager – Northeastern Ontario Regional Hub

3. Procedure

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

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

- 3.2 At a minimum, the QEMS Representative, 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;


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Reviewed by: R. Marshall, PCT	Approved by: Y. Rondeau, SPC Manager	

- d) The effectiveness of the risk assessment process;
- e) Internal and third-party audit results (including any preventive actions implemented to address Opportunities for Improvement (OFI) or rationale as to why OFIs were not implemented);
- f) Results of emergency response testing (including any OFIs identified);
- 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 SPC Manager 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 Owner.
- 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: R. Marshall, PCT		Approved by: Y. Rondeau, SPC Manager

5. Revision History

Date	Revision #	Reason for Revision
2009-08-31	0	Procedure issued
2011-09-07	1	Corrected Process Compliance Manager's title
2013-03-13	2	Revised position titles; Operations Manager has been changed to Senior Operations Manager, Cluster Manager has been changed to Operations Manager, and Process Compliance Manager has been removed as the position was discontinued.
2013-10-29	3	Updated name of system to Temagami Drinking Water Systems to include the distribution system
2019-06-10	4	Removed Scope and Responsibilities sections. Added definitions for Top Management and Operations Management. Revisions based on new requirements of the Standard; at least once every 12 months changed to once every calendar year (s. 3.1) and efficacy changed to effectiveness (s. 3.4). Added s. 3.2 and s. 3.3 to describe who is participating in the Management Review process. Added clarification on including any preventive actions implemented to address Opportunities for Improvement (OFI) or rationale as to why OFIs were not implemented when reviewing audit results (s. 3.4.e). Added Best Management Practices (BMPs) as a standing agenda item (s. 3.4.q). Added s. 3.5 to include consideration of BMPs and link OP-20 to OP-21 Continual Improvement.

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1. Purpose

To describe the procedure for tracking and measuring continual improvement of the Quality & Environmental Management System (QEMS) for the Temagami 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 these drinking water systems. They may also be identified as a result of other events such as:

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

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

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

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3.2.4 The QEMS Representative ensures corrective actions are documented using the QEMS - Summary of Findings 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 QEMS - Summary of Findings spreadsheet.

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

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

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subsequent Management Review meetings.

3.5 Best Management Practices (BMPs)

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

3.5.2 BMPs may include, but are not limited to:

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

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

4. Related Documents

Internal Audit Records
 QEMS - Summary of Findings spreadsheet
 OP-05 Document and Records Control
 OP-20 Management Review

5. Revision History

Date	Revision #	Reason for Revision
2019-06-10	0	Procedure issued – The original information within the main body of the Temagami Drinking Water System Operational Plan (revision 7, dated June 19, 2017) was not used in OP-21 as it did not meet the requirements of the new DWQMS v. 2.0. Information from QP-10 Internal Audit (s. 5.7 and s. 5.8) was incorporated into s. 3.2 and s. 3.3 of OP-21 but was modified to address non-conformances identified from additional inputs other than internal audits and preventive actions resulting from means other than OFIs from internal audits. In addition R&Rs were revised to include the SPC Manager, and to clarify the role of the QEMS Representative in investigating and determining corrective and preventive actions needed. A section on Best Management Practices (s. 3.5) was added to meet the new requirements of DWQMS v. 2.0.

Schedule C – Director's Directions for Operational Plans (Subject System Description Form) Municipal Residential Drinking Water System

Fields marked with an asterisk (*) are mandatory.

Owner of Municipal Residential Drinking Water System *
The Corporation of the Municipality of Temagami

Name of Municipal Residential Drinking Water System *
Temagami North Drinking Water System

Subject Systems

☒ Check here if the Municipal Residential Drinking Water System is operated by one operating authority. Enter the name of the operating authority in the below table.

	Name of Operational Subsystems(if Applicable)	Name of Operating Authority *	DWS Number(s) *
1		Ontario Clean Water Agency	220000433

Provide the information outlined in the 'Contact Information' section for **each** Operational Subsystem.

Contact Information 1

Last Name *	First Name *	Middle Initial
Legault	Victor	
Title *	Phone Number *	
Senior Operations Manager	705 679-4164	
Email Address *		
vlegault@ocwa.com		

Contact Information 2

Last Name *	First Name *	Middle Initial
Marshall	Rebecca	
Title *	Phone Number *	
Process & Compliance Technician	705 648-4267	
Email Address *		
rmarshall@ocwa.com		

Schedule C – Director's Directions for Operational Plans (Subject System Description Form) Municipal Residential Drinking Water System

Fields marked with an asterisk (*) are mandatory.

Owner of Municipal Residential Drinking Water System *

The Corporation of the Municipality of Temagami

Name of Municipal Residential Drinking Water System *

Temagami South Drinking Water System

Subject Systems

☒ Check here if the Municipal Residential Drinking Water System is operated by one operating authority. Enter the name of the operating authority in the below table.

	Name of Operational Subsystems(if Applicable)	Name of Operating Authority *	DWS Number(s) *
1		Ontario Clean Water Agency	220000424

Provide the information outlined in the 'Contact Information' section for **each** Operational Subsystem.

Contact Information 1

Last Name *

Legault

First Name *

Victor

Middle Initial

Title *

Senior Operations Manager

Phone Number *

705 679-4164

Email Address *

vlegault@ocwa.com

Contact Information 2

Last Name *

Marshall

First Name *

Rebecca

Middle Initial

Title *

Process & Compliance Technician

Phone Number *

705 648-4267

Email Address *

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