



**Ontario Clean Water Agency
Agence Ontarienne Des Eaux**

The Township of Chapleau

OPERATIONAL PLAN

for the Chapleau Water Treatment System

Revision 5, June 20, 2013



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DISCLAIMER STATEMENT

This Operational Plan is designed for the exclusive use of the Corporation of the Township of Chapleau.

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 and its associated Standard Operating Procedures, policies, Facility Emergency Plans, and audit protocol) 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.

Chapleau Water Treatment System

Owned by the Corporation of the Township of Chapleau
Operated by the Ontario Clean Water Agency

This Operational Plan defines and documents the Quality & Environmental Management System (QEMS) for the Chapleau Water Treatment System operated by the Ontario Clean Water Agency (OCWA). It sets out the OCWA's policies and procedures with respect to quality and environmental management in accordance with the requirements of the Province of Ontario's Drinking Water Quality Management Standard (DWQMS).

This Operational Plan expands on OCWA's corporate QEMS Reference Manual. Linkages between OCWA corporate and facility requirements are identified where appropriate.

REVISION HISTORY

Date	Revision	Description of Revision
2010-02-01	0	Operational Plan issued
2012-01-11	1	Revised QEMS Policy section (to address CGSB non-conformance); Replaced “continuous improvement” with “continual improvement to be more consistent with language in the Standard (CGSB OFI); Added additional information/instruction for completing the drinking water description based on the MOE’s guidance document (section 6); Added roles and responsibilities for Senior Operator/Mechanic, Operator/Mechanic and Instrumentation Technician based on standard job descriptions and added ORO/OIC prompts to section 9 (CGSB non-conformance); Revised competencies table to reflect skills and knowledge required as per standard job descriptions and section 10 text (CGSB non-conformance and OFIs); Revised Infrastructure Maintenance, Rehabilitation and Renewal to better describe OCWA’s maintenance program (CGSB non-conformance and OFIs); added list of tables, list of figures and list of acronyms & abbreviations; revised header and footer
2013-03-15	2	Change title of plan to ‘Chapleau Water Treatment System’. 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. Updated system description. Updated raw water quality results to 2010-2012 data. Removed reference to a tower and replaced it with clearwell levels within the Infrastructure Maintenance, Rehabilitation and Renewal section
2013-04-12	3	Changed the reference to Appendix B in Section 5, updated the temperature ranges to reflect those in Table A on page 11 General Characteristics
2013-04-23	4	Updated references to Appendices on page 12 – Section 3 is found in Appendix A not B; and Section 5 is found in Appendix B not A. Revised reference to Northern and Southern VP of Operations. There is currently only one VP for the entire province.
2013-06-20	5	Added the updated process flow diagram to reflect the current operations of the plant and to be more legible and removed duplicate mention of senior operations manager under the PCT portion of Table B,

TABLE OF CONTENTS

1	OCWA's Quality & Environmental Management System (QEMS)	6
2	Quality & Environmental Management System (QEMS) Policy	7
3	Commitment & Endorsement of OCWA'S QEMS & Operational Plan.....	8
4	Quality Management System Representative	8
5	Document and Records Control.....	8
6	Drinking Water System.....	8
7	Risk Assessment.....	12
8	Risk Assessment Outcomes.....	12
9	Organizational Structure, Roles, Responsibilities and Authorities.....	12
10	Competencies	16
11	Personnel Coverage.....	19
12	Communications	19
13	Essential Supplies and Services.....	19
14	Review and Provision of Infrastructure.....	19
15	Infrastructure Maintenance, Rehabilitation and Renewal.....	19
16	Sampling, Testing and Monitoring	21
17	Measurement and Recording Equipment Calibration and Maintenance.....	21
18	Emergency Management	21
19	Internal QEMS Audits.....	21
20	Management Review.....	21
21	Continual Improvement	22

LIST OF TABLES

Table A – Raw Water Characteristics (based on 2010-2012 data)

Table B – QEMS Roles, Responsibilities and Authorities

Table C – Competencies

LIST OF FIGURES

Figure 1 - Chapleau Water Treatment Plant - Process Flow Chart

LIST OF APPENDICES

- Appendix A Commitment & Endorsement of OCWA's QEMS & Operational Plan
- Appendix B QP-01 Document and Records Control
- Appendix C QP-02 Risk Assessment and Risk Assessment Outcomes
- Appendix D QEMS Organizational Structure for the Chapleau Water Treatment System
- Appendix E QP-03 Personnel Coverage
- Appendix F QP-04 Communications
- Appendix G QP-05 Essential Supplies and Services
- Appendix H QP-06 Review and Provision of Infrastructure
- Appendix I QP-07 Sampling, Testing and Monitoring
- Appendix J QP-08 Measurement and Recording Equipment Calibration and Maintenance
- Appendix K QP-09 Emergency Management
- Appendix L QP-10 Internal QEMS Audits
- Appendix M QP-11 Management Review
- Appendix N Subject System Description Form (Schedule C)

LIST OF ACRONYMS AND ABBREVIATIONS

AAP	Analysis/Action Plan
ANSI	American National Standards Institute
AWQI	Adverse Water Quality Indicator
AWWA	American Water Works Association
CCP	Critical Control Point
CEO	Chief Executive Officer
CFU	Colony Forming Units
CP	Contingency Plan
CPR	Cardiopulmonary resuscitation
CT	Concentration of disinfectant residual x Contact Time
DWQMS	Drinking Water Quality Management Standard
EEP	Environmental Emergency Procedure
FEP	Facility Emergency Plan
GUDI	Groundwater Under the Direct Influence of Surface Water
LMRS	Large Municipal Residential System
MOIR	Monthly Operations Report
ND	Not Detectable
NEO	Northeastern Ontario
NSF	National Sanitation Foundation
NTU	Nephelometric Turbidity Units
O. Reg.	Ontario Regulation
OCWA	Ontario Clean Water Agency
OIC	Operator-In-Charge
OIT	Operator-In-Training
OPEX	Operational Excellence
ORO	Overall Responsible Operator
OTJPT	On the job practical training
PCT	Process and Compliance Technician
PDC	Process Data Collection
PLC	Programmable Logic Controller
PPR	Performance Planning & Review
PVC	Polyvinyl chloride
QEMS	Quality & Environmental Management System
QP	Quality Procedure
SCADA	Supervisory Control and Data Acquisition
SDWA	Safe Drinking Water Act
SOP	Standard Operating Procedure
UV	Ultraviolet (light)
VP	Vice President
WHMIS	Workplace Hazardous Materials Information System
WMS	Work Management System
WTS	Water Treatment System

1 OCWA's Quality & Environmental Management System (QEMS)

OCWA is the contracted Operating Authority for the Chapleau Water Treatment System.

OCWA's Quality & Environmental Management System (QEMS) is structured and documented with the purpose of:

1. Establishing policy and objectives with respect to the effective management and operation of water/wastewater facilities;
2. Understanding and controlling the risks associated with the facility's activities and processes;
3. Achieving continuous improvement of the QEMS and the facility's performance.

2 Quality & Environmental Management System (QEMS) Policy

The Ontario Clean Water Agency, its Board of Directors, Officers and entire staff are committed to the principles and objectives set out in our Quality & Environmental Management System (QEMS) Policy.

OCWA's Policy is to:

- Maintain and continually improve upon a comprehensive quality and environmental management system (QEMS) to support the delivery of safe, reliable and cost-effective clean water services that protect public health and the environment.
- Establish clear objectives against which OCWA's environmental performance can be measured and assessed with the goal of continual improvement.
- Understand and comply with applicable legislation and regulations and audit the facilities we operate to ensure compliance.
- Utilize a risk-based approach to quality management that accounts for the complexity and specific challenges of providing operation and maintenance services.
- Promote client and consumer confidence through service excellence and effective communications.
- Collaborate with its clients to prevent pollution and contribute to a more sustainable future by promoting the use of operational efficiencies and improved technology.
- Train staff on their responsibilities under the QEMS and how meeting these responsibilities assist with the protection of public health and the environment.
- Report on facility performance to its employees, clients and stakeholders.

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).

OCWA's QEMS Policy is readily communicated to all OCWA personnel, the Owner and the public through OCWA's intranet and public websites. A complete review/revision history of the QEMS Policy is maintained on OCWA's intranet.

3 Commitment & Endorsement of OCWA'S QEMS & Operational Plan

Refer to Appendix A for Commitment and Endorsement of OCWA's QEMS & Operational Plan.

4 Quality Management System Representative

All personnel have a role and associated responsibilities within OCWA's QEMS.

The role of QEMS Representative for the Chapleau Water Treatment System is shared between Facility Level Top Management (Senior Operations Manager and Operations Manager) and Process & Compliance Technician (PCT).

The Senior Operations Manager and/or the Operations Manager is ultimately responsible for activities related to the operation of the drinking water system and for establishing and maintaining processes and procedures required for the overall administration of the facility's QEMS.

To assist in fulfilling the specific duties set out for the QEMS Representative, the Facility Level Top Management and the PCT are responsible for:

- Reporting on QEMS performance and identifying opportunities for improvement,
- Ensuring that current versions of documents related to the QEMS are in use, and
- Ensuring personnel are aware of all applicable legislative and regulatory requirements that pertain to their operational duties.

The QEMS Representative(s) are responsible for promoting awareness of the QEMS to all facility personnel.

5 Document and Records Control

Refer to Appendix B for QEMS Procedure QP-01 Document and Records Control.

6 Drinking Water System

Description of the Corporation of the Township of Chapleau Water Treatment System

The Chapleau Drinking Water System is owned by the Corporation of the Township of Chapleau. The treatment system is operated by the Ontario Clean Water Agency and the distribution system is operated by the Township of Chapleau Public Works Department. This subject system is not interconnected to any other drinking-water systems owned by different owners.

The Chapleau Water Treatment Plant, built in 1975, draws raw water for the municipal system from the Kebsquasheshing River (Chapleau River). Water passes through a concrete screening chamber and then through one of three 500 Imp. Gal. /min low lift pumps in the raw water well. There are no critical upstream or downstream processes relied upon to ensure the provision of safe drinking water.

The raw water is directed to a pre-contact tank where aluminum sulphate (alum) is added as a coagulant, polyelectrolyte (polymer) is added as a coagulant aid and sodium carbonate (soda ash) is added for pH and alkalinity adjustment. The pre-contact tank is also equipped with a chlorine injection line for pre-chlorination if required. After a short residence time, water flows by gravity to one of two clarifier tanks, which are equipped with 30-degree tube settlers and sludge scrapers. Clarified water passes through the upflow settlers and directed into two dual media filters, each comprised of silicate sand and anthracite coal. The filters backwash automatically based on filter runtime or head pressure.

The filtered water is then chlorinated and directed to a series of three reservoirs and three clearwells to provide adequate contact time. The combined storage volume is 1 818 400 litres. Water levels in the clearwells are used to control the plant's production. Two 20 hp high lift pumps and four 60 hp high lift pumps are utilized in clearwell 1 and 2 to direct treated water to the distribution system. Before entering the distribution system the treated water is dosed with soda ash for pH adjustment and ammonium sulphate to provide secondary disinfection through chloramination.

A diesel generator is connected to allow the treatment plant to remain in operation should a power failure occur. The water treatment process is controlled by a dedicated PLC and monitored through the SCADA computer system.

The distribution system is constructed primarily of ductile iron, and provides fire protection to the Township of Chapleau as well as drinking water. There are no water storage facilities in the distribution system, as storage is incorporated within the treatment plant. Based on the number of service connections, the system is classified as a Large Municipal Drinking Water System.

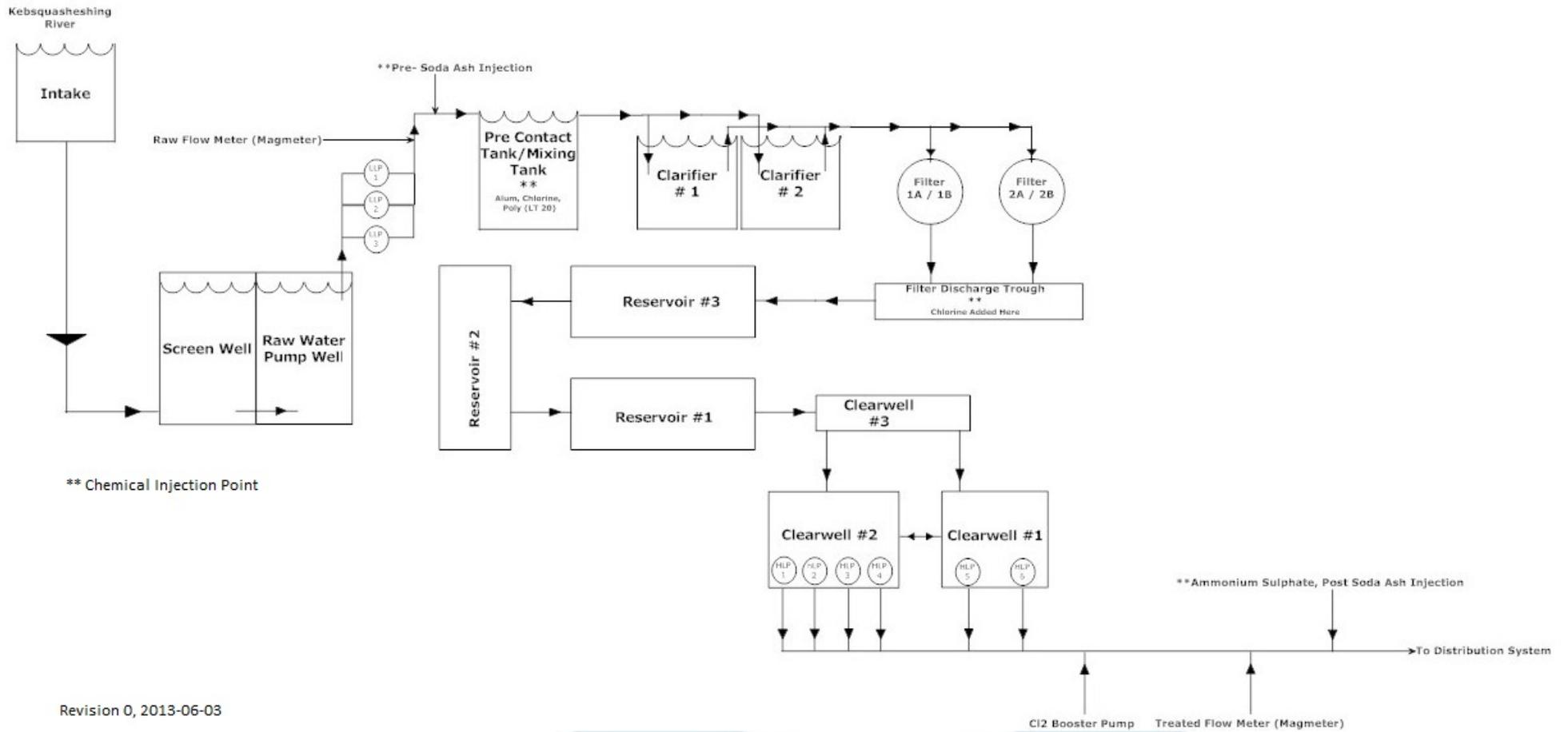


Figure 1 - Chapleau Water Treatment Plant - Process Flow Chart

Source Water

General Characteristics

The raw water source for the treatment plant is Kepsquasheshing River. The water from Kepsquasheshing River is typically low in turbidity and alkalinity. Temperature fluctuates significantly through the seasons ranging from approximately 3.5 °C in the winter to as high as 25.5 °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.

Table A - Raw Water Characteristics (based on 2010-2012 data)

Characteristic	Minimum	Maximum	Average
Alkalinity (mg/L)	4	64	47.2
Colour	3	97	48.4
pH	5.9	9.2	7.5
Temperature (°C)	3.5	25.5	12.9
Turbidity (NTU)	0.8	15.8	1.8
<i>E. coli</i> (cfu/100 mL)	<1	60	4.7
Total Coliforms	<1	274	46.5

Common Fluctuations

Raw water turbidity increases during spring runoff and significant rainfall events. Jar tests are performed when necessary.

Water temperature changes significantly from winter to summer. Warm summer temperatures may result in an increase of taste and odor concerns. No chemical treatment is added in response to taste and odor or temperature changes.

Threats

Potential sources of raw water contamination include:

- spills from boats and snow mobiles
- air crafts landing in river (personal and tourist outfit)
- wastewater spill from industry (lumber mill upstream)
- chemical spill from co-generation plant (upstream), cooling water discharge (use caustic soda and sulfuric acid)
- beaver activity
- train derailment
- chemical spill from electric station
- fire risks at industrial facilities – runoff from firewater concentrated in metals and chemicals

Upstream and downstream sampling is not deemed necessary at this time. On occasion, samples will be collected for phenols when requested by the Township of Chapleau.

Operational Challenges

Spring and fall turnover is the greatest operational challenge for the Chapleau water treatment plant. 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.

7 Risk Assessment

Refer to Appendix C for QEMS Procedure QP-02 Risk Assessment and Risk Assessment Outcomes.

8 Risk Assessment Outcomes

Refer to Appendix C for Summary of Risk Assessment Outcomes.

9 Organizational Structure, Roles, Responsibilities and Authorities

Organizational Structure and Top Management

OCWA provides operation, maintenance and management services for hundreds of water and wastewater facilities throughout the Province of Ontario. Direct operational activities are primarily delivered through the Agency's Operations Division. Corporate level divisions that carry out administrative functions for the Agency are expanded upon in the QEMS Reference Manual.

To best meet the needs of each facility and its owner, OCWA's Operations Division is structured as follows:

- *Hub* – Facilities are grouped together geographically to form hubs. The Senior Operations Manager has oversight responsibility for all of the facilities contained within a particular hub. In some hubs, a Operations Manager assists the Senior Operations Manager with his/her duties.
- *Regional* – Hubs are further grouped together to form regions, each headed by a Regional Manager. Regional Managers play a critical role within OCWA's QEMS in that they act as a key link between corporate and facility level management.
- *Provincial* – Regions fall under the direction of the VP of Operations.

The chart, QEMS Organizational Structure for the Chapleau Water Treatment System (Appendix D), reflects the lines of responsibility and authority for OCWA's QEMS at both the facility and corporate level.

OCWA has defined two levels of Top Management within its structure, which, through a shared responsibility for conducting periodic management reviews, ensure the maintenance and continual improvement of OCWA's QEMS:

Facility Level Top Management – consisting of the Senior Operations Manager and the Operations Manager. Management, in accordance with QEMS Procedure QP-11 Management Review, holds a special meeting at least once per year to review the effectiveness and performance of the QEMS implemented at the facility and to initiate

appropriate facility management action to maintain and improve the QEMS. The results of the meeting are provided to the Regional Manager for consideration by corporate level Top Management and to initiate appropriate action with respect to the Agency’s broader QEMS.

Corporate Level Top Management – consisting of Regional Managers, VP of Operations, Director of Risk, Compliance & Training, President & CEO and OCWA’s Board of Directors. Each has specific corporate oversight responsibilities for the Agency’s QEMS, which are described in the QEMS Reference Manual. The overall performance and effectiveness of OCWA’s QEMS is formally reviewed and reported to corporate level Top Management on an annual basis. It is also monitored on an ongoing basis through scheduled meetings of OCWA’s Operations & Compliance Committee, Executive Management Team and Board of Directors. Through these reporting and monitoring activities, corporate level Top Management identifies opportunities for improvement, initiates action plans and assigns responsibility for their completion.

QEMS Roles, Responsibilities and Authorities

OCWA management defines the roles, responsibilities and authorities under its QEMS for all employees whose work could have a significant impact on drinking water quality. These are communicated to all personnel to ensure that individual roles and responsibilities and how they relate to those of the rest of the organization are understood.

Specific QEMS-related roles, responsibilities and authorities of Operations personnel for the facility are summarized in Table B below. Additional duties of employees are described in their job specifications.

Corporate level roles, responsibilities and authorities are defined in the QEMS Reference Manual.

Responsibilities and authorities for implementing and maintaining individual elements of the facility’s QEMS are outlined in the QEMS Procedures referenced throughout this Operational Plan.

Table B - QEMS Roles, Responsibilities and Authorities

Position	QEMS Roles, Responsibilities and Authorities
All Operations Personnel	<ul style="list-style-type: none"> • Work in accordance with OCWA policies, procedures and plans • Document all activities • Participate in QEMS training • Be aware of all the environmental and public health risks at the facility • Consider risks and ramifications of all actions • Participate in testing and development of SOPs and contingency plans • Implement action plans to rectify deficiencies identified in audits and inspections of the facility • Take all appropriate training to ensure competence in their job • Identify and bring forward to the Senior Operations Manager opportunities for improving the facility’s QEMS • Perform duties in compliance with applicable legislation and regulations
Regional Manager <i>(Corporate Level Top Management)</i>	<ul style="list-style-type: none"> • Review major issues/deficiencies (including those from audit and inspection reports) and provide further direction to address/resolve • Respond to regular facility Management Reviews, as appropriate • Report to corporate level Top Management on the status of the QEMS

Position	QEMS Roles, Responsibilities and Authorities
	implemented at the facilities in his/her region
<p>Senior Operations Manager <i>(Facility Level Top Management and QEMS Representative)</i></p>	<ul style="list-style-type: none"> • Delegate responsibilities, deploy resources and supervise sound operation and maintenance of the facility and of the QEMS • Liaise with the owner on relevant components of the QEMS including OCWA's roles, responsibilities and authorities for the facility • Ensure appropriate facility resources to maintain and continually improve the QEMS • Participate in regular facility Management Reviews • Establish a training plan for staff to address regulatory requirements and the QEMS as part of the PPR process • Fulfill defined duties of the QEMS Representative (refer to element 4)
<p>Operations Manager <i>(Facility Level Top Management)</i></p>	<ul style="list-style-type: none"> • Fulfill duties assigned by the Senior Operations Manager • Deploy resources and supervise sound operation and maintenance of the facility and of the QEMS • Participate in the completion of annual internal audits • Assist in the development and implementation of action plans to respond to audit and MOE inspection findings • Assist in the establishment, testing and updating of a site-specific emergency plans • Participate in regular facility Management Reviews • Liaise with the owner on relevant components of the QEMS • Develop/implement training plans for staff • Support Senior Operations Manager on all aspects of the QEMS and fulfill assigned duties of the QEMS Representative (refer to element 4) • Act for the Senior Operations Manager in his/her absence • Act as Overall Responsible Operator (ORO) when required. Refer to ORO Letter
<p>Process & Compliance Technician (PCT) <i>(QEMS Representative)</i></p>	<ul style="list-style-type: none"> • Fulfill duties assigned by the Senior Operations Manager • Participate in the completion of annual internal audits and develop/monitor/implement action plans to respond to the findings • Participate in MOE inspections and assist in the response to required actions or recommendations • Actively participate in the development and maintenance of facility emergency plans • Participate in regular facility Management Reviews • Report to the Senior Operations Manager on QEMS implementation and identify the need for additional processes and procedures • Liaise with the owner on relevant components of the QEMS • Deliver/participate in training on regulatory requirements and the QEMS • Implement, monitor and support corporate QEMS programs • Support Senior Operations Manager on all aspects of the QEMS and fulfill assigned duties of the QEMS Representative (refer to element 4)
<p>Overall Responsible Operator</p>	<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

Position	QEMS Roles, Responsibilities and Authorities
	<ul style="list-style-type: none"> • Assist management in providing recommendation for annual capital forecasts and gathering information for operational reports as required • 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) and/or Overall Responsible Operator (ORO) when required
Operator/Mechanic	<ul style="list-style-type: none"> • Fulfill duties assigned by the Operations Manager and/or Overall Responsible Operator • 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 regulations, permits, certificates and established operating procedures • 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 • Train and direct new staff on the facility processes, equipment and procedures. • Maintain the facility log book according to regulatory requirements • May act as Operator-in-Charge (OIC)
Instrumentation Technician	<ul style="list-style-type: none"> • Provide advice and technical expertise on the services required for process control and automation systems • Formulate technical plans and proposals for deployment and delivery of process control and automation systems in support of operational activities • Coordinate, maintain and provide technical services in regards to process control and automation systems including preventive maintenance procedures • Discuss and advise on detailed system and programming requirements, modify existing and new software in response to plant requests, train plant operations and maintenance staff, 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 • Install and commission new electrical/electronic equipment and automation systems

10 Competencies

The following table presents the competencies required by OCWA personnel whose duties directly affect drinking water quality.

Table C - Competencies

Position	Required Competencies
<p>Senior Operations Manager</p>	<ul style="list-style-type: none"> • Operator certification in good standing • Comprehensive general knowledge of and experience in managing water treatment operations, maintenance as well as facility financial planning and administration • Outstanding team leadership, managerial and coordinating skills • Sound knowledge of relevant legislation, regulations, codes, policies, guidelines and procedures • Knowledge and awareness of the DWQMS • Strong initiative, analytical, evaluating and problem-solving skills to assess administrative and technical needs and capabilities • Well-developed priority-setting and time management skills • Superior interpersonal skills • Excellent oral and written communication skills • Proficiency in office and operational computerized systems • Valid Class G Driver's Licence
<p>Operations Manager</p>	<ul style="list-style-type: none"> • Operator certification in good standing • Experience in water treatment operations, maintenance as well as facility financial planning and administration • Advanced knowledge of relevant legislation, regulations, codes, policies, guidelines and procedures • Knowledge and awareness of the DWQMS • Advanced technical knowledge of principles, practices, technologies and methodologies for water treatment • Familiarity with complex mechanical equipment and electronic controls • Analytical, evaluating and problem-solving skills • Project management, work planning and scheduling skills • Good oral and written communication skills • Proficiency in office and operational computerized systems • Management/supervisory experience • Valid Class G Driver's Licence
<p>Overall Responsible Operator</p>	<ul style="list-style-type: none"> • Operator certification in good standing; minimum level required to act as OIC and ORO • Extensive knowledge and experience of water treatment processes to operate the facility • Experience and knowledge of the maintenance and repair of a variety of equipment and structures • Good working knowledge of legislation, regulations, codes, policies, guidelines and procedures related to operations and maintenance • Knowledge and awareness of the DWQMS • Basic mathematics and chemistry • Good knowledge of computers, monitoring and operating systems • Good knowledge to use and understand operating and maintenance manuals, blueprints and other technical specifications • Planning and organizational skills to lead projects and provide technical direction to staff • Demonstrated leadership and decision making skills required to direct

Position	Required Competencies
	<ul style="list-style-type: none"> an operational team • Problem solving and evaluative skills to provide technical guidance and resolve operational issues • Planning skills to regularly inspect and monitor the facility, processes and equipment and perform routine preventative maintenance • Good oral and written communication skills • Ability to work in a team and take initiative when required. • Valid Class G Driver's Licence
Operator/Mechanic	<ul style="list-style-type: none"> • Operator certification in good standing; minimum OIT; minimum level required to act as OIC and/or ORO • Good knowledge of water treatment processes to operate the facility • Experience and knowledge of the maintenance and repair of a variety of equipment and structures • Good working knowledge of legislation, regulations, codes, policies, guidelines and procedures related to operations and maintenance • Knowledge and awareness of the DWQMS • Basic mathematics and chemistry • Familiarity with computers, monitoring and operating systems • Knowledge to use and understand operating and maintenance manuals, blueprints and other technical specifications • Planning, scheduling and problem-solving skills to regularly inspect and monitor the facility, processes and equipment and perform routine preventative maintenance • Good oral and written communication skills • Ability to work in a team and take initiative when required. • Valid Class G Driver's Licence
Process & Compliance Technician	<ul style="list-style-type: none"> • Operator certification in good standing; minimum OIT • Extensive knowledge of compliance requirements related to water treatment processes • Good knowledge of relevant legislation, regulations, codes, policies, guidelines and procedures to monitor program delivery and ensure compliance • Knowledge and awareness of the DWQMS • Good knowledge and understanding to apply impact of changes to legislative and regulatory requirements on programs and operational processes • Excellent knowledge of computers, operating programs and systems • Evaluative and analytical skills to monitor and assess facility performance against legal requirements and corporate goals • Excellent oral and written communication skills to provide technical advice related to compliance to a variety of staff and officials and to prepare analytical reports • Presentation skills to prepare and present informational material • Auditing skills/experience • Problem-solving skills to resolve compliance issues • Ability to work with a team and take initiative when required • Valid Class G Driver's Licence
Instrumentation Technician	<ul style="list-style-type: none"> • Operator certification in good standing; minimum OIT • Theoretical and practical knowledge/experience/training in water/wastewater treatment operation processes, design, instrumentation, process control and automation systems • Knowledge and awareness of the DWQMS

Position	Required Competencies
	<ul style="list-style-type: none"> • Technical evaluation and design skills necessary for process control and automation optimization and deployment • Experience in delivering technical guidance for hardware/software selection • Thorough understanding of network and telecommunications environment, standards and operating systems, computer language, ladder logic and relational and document based database management systems • Ability to monitor, review and troubleshoot network, hardware, software and instrumentation performance • Analytical and evaluative problem-solving skills to assess client, process and control requirements • Well-developed organizational, time and project management skills • Superior interpersonal skills • Good oral and written communication skills • Valid Class G Driver's Licence

OCWA's recruiting and hiring practices follow those of the Ontario Public Service (OPS). As part of the OPS, 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 and based on this evaluation; the hiring manager selects and assigns personnel for specific duties.

Certified operators are responsible for completing the annual number of required training hours for the highest type and class of subsystem where the operator works and 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 Senior Operations Manager takes reasonable steps to ensure that every operator has the opportunity to attend training to meet the annual training hour requirements.

OCWA's Operational Training Program is maintained by the Risk, Compliance & Training Division and aims to:

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

The Program consists of both continuing education and on-the-job training and is delivered using a combination of methods (e.g., traditional classroom courses and custom/program-based courses/sessions). A formal evaluation process is in place for all sessions under the Operational Training Program and is a critical part of the Program's continual improvement.

Facility personnel receive site-specific training 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.

Awareness of OCWA's QEMS is promoted through the OCWA Employee Orientation Program for new employees, hub/regional level training sessions and meetings and the Agency's Environmental Compliance course. It is recommended that the Environmental Compliance

course be attended by all new staff and at least every five years to ensure staff are kept current on any changes to regulatory requirements and to reinforce their roles and responsibilities under OCWA's QEMS. Other mandatory and recommended training requirements are listed as part of the Employee Orientation Program available on OCWA's intranet or through the Human Resources department.

Individual OCWA employee training records are maintained and tracked using a computerized system, the Training Summary database, which is also administrated by the Risk, Compliance & Training Division. Training records maintained at the facility are controlled as per QEMS Procedure QP-01 Document and Records Control.

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 by the facility's management team as part of this process (and on an ongoing basis). In addition to this process, OCWA employees may at any time request training by both internal and external providers by submitting a "Request for Staff Development" form to their respective managers for authorization.

11 Personnel Coverage

Refer to Appendix E for QEMS Procedure QP-03 Personnel Coverage.

12 Communications

Refer to Appendix F for QEMS Procedure QP-04 Communications.

13 Essential Supplies and Services

Refer to Appendix G for QEMS Procedure QP-05 Essential Supplies and Services.

14 Review and Provision of Infrastructure

Refer to Appendix H for QEMS Procedure QP-06 Review and Provision of Infrastructure.

15 Infrastructure Maintenance, Rehabilitation and Renewal

Planned Maintenance

OCWA, under contract with the owner, maintains a program of scheduled inspection and maintenance of infrastructure for which it is operationally responsible. As the service provider, OCWA has prepared a Preventative Maintenance Plan, which includes a complete list of all equipment, as well as daily, monthly, seasonal, annual maintenance activities to be conducted to ensure the good and proper upkeep of the Municipal water facilities. OCWA is responsible for completing the following routine maintenance:

- Inspect, adjust and calibrate process control equipment to ensure proper operation of water treatment systems, pumps, chemical feeders, and all other equipment installed at the facilities.
- Check of clearwell level to ensure everything is in order.
- Carry out a routine maintenance program including greasing and oiling as specified in manufacturers' recommendations.
- Perform day-to-day maintenance duties to equipment including checking machinery and electrical equipment when required.
- Maintain an inventory of equipment and tools.
- Maintain accurate records of work conducted, activities, and achievements.

Planned maintenance activities are scheduled using a computerized Work Management System (WMS) that allows user to:

- Enter detailed asset information
- Generate and process work orders
- Access maintenance and inspection procedures
- Plan, schedule and document all asset related tasks and activities
- 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 generated by the ORO on a monthly basis and are distributed accordingly. Completed work orders are submitted to the designated data entry Operator/Mechanic for entry into WMS except for those pertaining to the calibration of equipment. Completed calibration reports are entered into WMS by a designated Instrumentation Technician. Records of these activities are maintained as per QEMS Procedure QP-01 Document and Records Control.

The ORO maintains the inventory of equipment in WMS and ensures that appropriate maintenance plans are in place. Maintenance plans are developed according to the manufacturer's instructions, regulatory requirements, industry standards, and/or client service requirements. Equipment Operation and Maintenance (O&M) manuals are accessible to staff at the locations specified in QEMS Procedure QP-01 Document and Records Control.

Unplanned Maintenance

Unplanned maintenance is conducted as required. All unplanned maintenance activities are authorized by the Operations Manager. Unplanned maintenance activities are recorded on work orders and are entered into WMS and/or the facility's logbook

Rehabilitation and Renewal

Rehabilitation and renewal activities including capital upgrades are determined on an annual basis in consultation with the Owner (refer to QP-06 Review and Provision of Infrastructure). A list of required replacement or desired new equipment is compiled and prioritized by the Senior Operations Manager and/or designate and is presented to the Owner for review and comment. All major expenditures require the approval of the Owner.

Program Monitoring and Reporting

As mentioned above, 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 monthly, quarterly, seasonal, or annual work orders. In addition to the monthly reports completed by the Operations Manager which indicate the status of completed work orders, the Senior Operations Manager and Regional Manager are provided with monthly summary reports for each facility to assist in monitoring the effectiveness of the program. OCWA's Executive Management Team is also provided with hub and regional summary reports on an ongoing basis.

Any major unplanned maintenance activities and deficiencies are communicated with the owner. Summary reports are available at the owner's request.

16 Sampling, Testing and Monitoring

Refer to Appendix I for QEMS Procedure QP-07 Sampling, Testing and Monitoring.

17 Measurement and Recording Equipment Calibration and Maintenance

Refer to Appendix J for QEMS Procedure QP-08 Measurement and Recording Equipment Calibration and Maintenance.

18 Emergency Management

Refer to Appendix K for QEMS Procedure QP-09 Emergency Management.

19 Internal QEMS Audits

Refer to Appendix L for QEMS Procedure QP-10 Internal QEMS Audits.

20 Management Review

Refer to Appendix M for QEMS Procedure QP-11 Management Review.

21 Continual Improvement

In conjunction with the internal QEMS audit and Management Review processes documented above, OCWA uses action plans to continually improve its QEMS. Through these processes, areas of concern as well as opportunities for improvement are identified at the drinking water systems operated and maintained by OCWA.

Schedule C – Subject System Description Form

Refer to Appendix N for a completed Subject System Description Form (Schedule C).

Appendix A

Commitment & Endorsement of OCWA's QEMS & Operational Plan

Commitment & Endorsement of OCWA's QEMS & Operational Plan

This Operational Plan supports the overall goal of OCWA and the Corporation of the Township of Chapleau 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 Chapleau Water Treatment System and will do so in a manner that ensures compliance with applicable legislation. Through the endorsement of this Operational Plan, the Corporation of the Township of Chapleau commits to cooperating in any reasonable request of OCWA to facilitate this goal.

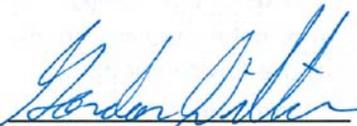
Top management of both OCWA and the Corporation of the Township of Chapleau has approved the QEMS for the drinking water system as documented in this Operational Plan.

The last revision of the 'Operational Plan for the Chapleau Drinking Water Treatment System' requiring owner endorsement was Revision 1, January 11, 2012.

Operating Authority Approval

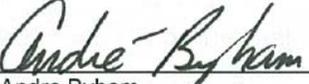

Tony Janssen
Operations Manager

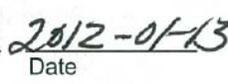

Date

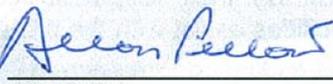

Gord Williams
Regional Manager, Operations

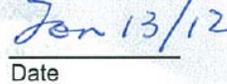

Date

Owner Endorsement & Approval


Andre Byham
Mayor


Date


Allan Pellow
Chief Administrative Officer


Date

Any major revision of the operational plan will be re-endorsed by top management of both OCWA and the Corporation of the Township of Chapleau. Major revisions include:

- Change of Owner
- Addition or removal of any treatment process
- Operation of additional drinking water subsystems owned by the same Owner

The Owner will be provided with a copy of all revisions of the plan.

Appendix B

QP-01 Document and Records Control

	<h2>QEMS Procedure</h2>	Proc.: QP-01 Issued: 2013-06-20 Rev.#: 4 Pages: 1 of 5
Ontario Clean Water Agency		Reviewed by: Amanda Dubuc, PCT
Approved by: Eric Nielson, Senior Operations Manager		

DOCUMENT and RECORDS CONTROL

1.0 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.

2.0 Scope

Applies to QEMS Documents and QEMS Records pertaining to the Chapleau Water Treatment System, as identified in this procedure.

3.0 Responsibility

All Facility Staff
Operations Manager
Corporate Compliance Group
Information Technology Department
Senior Operations Manager
Overall Responsible Operator (ORO)
Process & Compliance Technician (PCT)

4.0 Definitions

Controlled – managed as per the conditions of this procedure

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

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

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

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

5.0 Procedure

- 5.1 Documents and records required by OCWA's QEMS are listed in Table 1.
- 5.2 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.
- 5.3 Additional controls for QEMS Procedures within this Operational Plan are used to ensure appropriate review and approval. These include the use of authorized

approval, alpha-numeric procedure code, issue date, revision number and revision history.

Authorized personnel for review and approval of QEMS Procedures for the Chapleau Water Treatment System are:

Review	PCT or ORO
Approval	Senior Operations Manager or Operations Manager

- 5.4 The PCT and Senior Operator are responsible for ensuring that current versions of QEMS documents are being used at all times. Current QEMS documents and records are readily accessible to Operations personnel and to internal and external auditors/inspectors at document control locations established by the QEMS Representative. 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 Table 1.

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.

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

Access to facility QEMS records contained within internal electronic databases and applications (e.g., OPEX, PDC, WMS) is administered by designated application managers/trustees, requires the permission of the Senior Operations Manager and is restricted through use of usernames and passwords.

SCADA records are maintained and accessible to all staff when required.

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

The QEMS Representative communicates any changes made to QEMS documents to relevant facility 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, OCWA's weekly electronic bulletin and provincial, regional, hub or facility-level training sessions.

- 5.7 When a QEMS document is superseded, the hardcopy of the document is promptly removed from its location and forwarded to the QEMS Representative or designate for disposal or retention (as appropriate).

- 5.8 The authorized method for disposal of hardcopy documents and records after the specified retention requirements have been met is shredding. Electronic copies are re-located to an obsolete folder and marked "Superseded".

- 5.9 QEMS documents and records are retained in accordance with applicable regulations and legal instruments. Relevant regulatory and corporate minimum retention periods are listed in Table 2.
- 5.10 The Operational Plan is reviewed for currency at least annually in preparation for audits and the Management Review. Other QEMS-related documents are reviewed as per the schedules set out in this Operational Plan or as significant changes (e.g., changes in regulatory requirements, Corporate policy or operational processes and/or equipment, etc.) occur. QEMS documents and records are reviewed for evidence of control during each internal system audit as per QEMS Procedure QP-10 Internal QEMS Audits.

6.0 Related Documents

QP-10 Internal QEMS Audits

7.0 Revision History

Date	Revision	Reason for Revision
2010-02-01	0	Procedure issued
2012-01-11	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)
2012-11-13	2	Change title of plan to 'Chapleau Water Treatment System'. 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. Removed 'C of A Exceedance Record' from Table 1.
2013-04-12	3	Updated Table 1 to include a second location to which the public can access the Operational Plan
2013-05-20	4	Added AWWA Standards and Public Binder to Table 1

Table 1 - Designated location for documents and records required by OCWA's QEMS

Type of Document/Record	Designated Document Control Location (HC = Hardcopy, EC = Electronic)
Internal QEMS Documents	
Emergency Contact Lists	EC - \\ocwfile\public\NEO DWQMS HC - Chapleau Water Treatment Plant (WTP) (Facility Emergency Plan (FEP) Binder)
Emergency Response Plan (corporate)	EC - OCWA's intranet
Essential Supplies and Services List	EC - \\ocwfile\public\NEO DWQMS HC - Chapleau WTP (FEP Binder)
On-call Schedule	EC - Microsoft Outlook Shared Calendar
Operational Plan (includes QEMS Procedures)	EC - \\ocwfile\public\NEO DWQMS EC – www.chapleau.ca HC - DWQMS Filing Cabinet (Chapleau WTP) HC – Township of Chapleau Office
ORO letter	HC - Chapleau WTP
QEMS Policy	EC - Online at www.ocwa.com & OCWA's intranet HC - Chapleau WTP
QEMS Reference Manual	EC - \\ocwfile\public\NEO DWQMS
Sample Schedule	EC - \\ocwfile\public\NEO DWQMS HC - Chapleau WTP (FEP Binder)
Site Specific Environmental Emergency Procedures	EC - \\ocwfile\public\NEO DWQMS HC - Chapleau WTP (FEP Binder)
Standard Operating Procedures (referenced in Operational Plan and QEMS Procedures)	EC - \\ocwfile\public\NEO DWQMS HC - Chapleau WTP (FEP Binder)
Vacation Calendar	EC - Microsoft Outlook Shared Calendar
Internal QEMS Forms (Blank)	
Adverse Water Quality Incident (AWQI)	EC - \\ocwfile\public\NEO DWQMS HC - DWQMS Filing Cabinet (Chapleau WTP)
Call-In Report	
Community Complaint	
Environmental Incident Report	
Instrumentation Calibration/Maintenance Report	
Chain of Custody Forms	
Loss of Pressure Incident Report	
Rounds Sheets	
External QEMS Documents	
Applicable federal and provincial legislation	Online at www.e-laws.gov.on.ca
Municipal By-laws	HC - Municipal Office
Public Binder	HC – Municipal Office
Operations Manual	HC - Chapleau WTP
Equipment /Maintenance Manuals	HC - Chapleau WTP
Engineering schematics/plans/drawings	HC - Chapleau WTP HC - Municipal Office

Type of Document/Record	Designated Document Control Location (HC = Hardcopy, EC = Electronic)
Permit to Take Water	HC - Chapleau WTP
Operator certificates	HC - Chapleau WTP
Municipal Drinking Water Licence	HC - Chapleau WTP
Drinking Water Works Permit	HC - Chapleau WTP
AWWA Standards	EC - \\ocwfile\public\NEO DWQMS
MOE Inspection Reports	EC - \\ocwfile\public\NEO DWQMS
QEMS Records (Completed)	
AWQI Reports	EC - \\ocwfile\public\NEO DWQMS HC – Chapleau WTP Compliance Binder
Annual Compliance/Summary Reports for Municipalities	EC - \\ocwfile\public\NEO DWQMS
Audit Reports - External	EC - \\ocwfile\public\NEO DWQMS
Audit Reports - Internal QEMS	EC - \\ocwfile\public\NEO DWQMS
Call-In Report	EC - Workplace Management System (WMS)/Hansen
Community Complaint	EC - OPEX database
Environmental Incident	EC - OPEX database
Facility Logbooks	HC - Chapleau WTP
Instrumentation Calibration/Maintenance Record	EC – WMS/Hansen HC – Chapleau WTP Compliance Binder
Laboratory Analytical Reports	EC - Microsoft Outlook E-mail
Loss of Pressure Incident	EC - OPEX database
Management Review Documentation	EC - \\ocwfile\public\NEO DWQMS
Operator Training Records	EC - OCWA's Training Summary Database
QEMS Communications - External	EC - Microsoft Outlook E-mail
QEMS Communications - Internal	EC - Microsoft Outlook E-mail
Rounds Sheets	HC – Chapleau WTP
SCADA Records	EC - INSQL server (Wonderware)
WMS/Hansen Reports	EC - Microsoft Outlook E-mail
WMS/Hansen Work Orders (Maintenance Records)	EC – WMS/Hansen

Table 2 - Relevant regulatory and corporate minimum retention periods

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	3 years	OCWA Requirement
Documents/records required to demonstrate compliance with Ontario legislation	As per applicable regulations	SDWA O. Reg. 170/03, O. Reg. 128/04

Appendix C

QP-02 Risk Assessment and Risk Assessment Outcomes

 Ontario Clean Water Agency	<h2>QEMS Procedure</h2>	Proc.: QP-02 Issued: 2013-03-15 Rev.#: 2 Pages: 1 of 4
Reviewed by: Amanda, PCT	Approved by: Eric Nielson, Senior Operations Manager	

RISK ASSESSMENT and RISK ASSESSMENT OUTCOMES

1.0 Purpose

To define the process for conducting a drinking water risk assessment and for documenting and reviewing the results of the assessment at the facility level.

2.0 Scope

Applies to all OCWA-operated municipal residential drinking water systems and includes the identification and assessment of potential hazardous events and hazards that could affect drinking water safety. OCWA's approach to addressing other potential hazards is set out in QEMS Procedure QP-09 Emergency Management.

3.0 Responsibility

Senior Operations Manager
 Operations Manager
 Process & Compliance Technician (PCT)
 Overall Responsible Operator

4.0 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

5.0 Procedure

- 5.1 The Senior Operations Manager assigns personnel to conduct the risk assessment (e.g., Process & Compliance Technician (PCT), Maintenance staff, Operators, Facility Managers).
- 5.2 Using the system's process diagram, identify hazardous events and associated hazards (possible outcomes) that could impact the system's ability to deliver safe drinking water in Table 1¹ for each activity/process step.
- 5.3 For each of the hazardous events, specify control measures currently in place at the facility that eliminate the hazard or prevent it from becoming a threat to public health.

Note: Some hazards/hazardous events may have step-by-step contingency plans associated with them. These contingency plans are developed as per OCWA's Emergency Management Program and are further described in QEMS Procedure QP-09 Emergency Management.

- 5.4 To ensure that potential drinking water health hazards are addressed and minimum treatment requirements as regulated by SDWA O. Reg. 170/03 and the *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 at all OCWA-operated facilities (as applicable):

- Processes necessary to achieve the required log removal or inactivation of pathogens (i.e., chemical and/or UV disinfection system, filtration process² for surface water and GUDI systems)
- Processes necessary for maintaining a disinfectant residual in the distribution system (includes re-chlorination points)
- Fluoridation system

Identify the above processes (as they apply) as mandatory CCPs in the 'CCP?' column in Table 1.

- 5.5 To determine if there are any additional CCPs for the system, evaluate and rank the hazardous events (as set out below in steps 5.6 and 5.7) for the remaining activities/process steps (i.e., those not included as OCWA's minimum CCPs).
- 5.6 Taking into consideration existing control measures (including the reliability and redundancy of equipment), assign each hazardous event a value for the likelihood and a value for the consequence of that event occurring based on the following criteria:

Value	Likelihood of Hazardous Event Occurring
1	Rare – Estimated to occur every 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

¹ Tables referred to in this procedure are contained within the facility-specific **Summary of Risk Assessment Outcomes**

² Filtration process includes related processes (e.g., chemical coagulation, rapid mixing, flocculation, sedimentation)

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

Multiply the likelihood and consequence values to determine the risk value (ranking) of each hazardous event and record all values in Table 1. Hazardous events with a ranking of 12 or greater are considered high risk.

5.7 Review the hazardous events and rankings documented in Table 1 and identify any activity/process step 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)
- ✓ Failure of the control measures would lead to immediate notification of Medical Officer of Health (MOH) or Ministry of the Environment (MOE) or both.

5.8 List identified CCPs (required minimum and any additional CCPs established by the risk assessment) in Table 2. Set related critical control limits (e.g., limits for turbidity, chlorine residual, temperature, pH) for each CCP as appropriate.

5.9 Ensure procedures have been developed and implemented at the facility to:

- Monitor the critical control limits
- Respond to, report and record deviations from the critical control limits.

List these procedures in Table 2.

5.10 The information recorded in the Summary of Risk Assessment Outcomes is maintained at the facility level on an ongoing basis. At least once a year, the PCT, in conjunction with the facility level top management and/or operations staff, reviews the risk assessment documentation to verify the currency of the information and the validity of the assumptions used in the risk assessment in preparation for the Management Review.

5.11 The Senior Operations Manager ensures that a risk assessment is conducted and documented at least once every thirty-six months.

6.0 Related Documents

QP-09 Emergency Management
 Summary of Risk Assessment Outcomes (facility-specific)

7.0 Revision History

Date	Revision	Reason for Revision
2010-02-01	0	Procedure issued
2012-01-11	1	Clarification of wording for Scope (2.0) and Procedure 5.7. Procedure 5.10 revised to reflect changes of the review process for the risk assessment.
2013-03-15	2	Change title of plan to 'Chapleau Water Treatment System'. 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.



Summary of Risk Assessment Outcomes

Chapleau Water Treatment System

Table 1 - Risk Assessment Table

Note: Processes referred to in section 5.4 of QP-02 Risk Assessment and 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 Kebaquasheshing River (boats, train, aircraft and snow mobiles, wastewater spill from upstream lumber mill, chemical spill from upstream co-generation plant, beaver activity, chemical spill from electric station, fire risks at industrial facilities – runoff from firewater concentrated in metals and chemicals)	Contamination of source water	When notified, staff will take appropriate response action Monitor and sample Daily grab samples during Monday – Friday for; pH, colour, turbidity. Weekly grab samples for alkalinity Site specific Environmental Emergency Procedure (EEP) for Off-site Chemical/Fuel Spill Site specific EEP for Contaminated Raw Water	4	3	12	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No - no controls
	Breakage/blockage of intake pipe	Loss of water supply	None – staff would take appropriate response measures Low lifts can push process water through intake to clear it out under emergency situations	1	2	2	
	Changes in river depth and temperature	Increased demand on process operations and potential decrease in supply	Daily grabs for temperature Monitor river depth Staff would take appropriate response measures if the changes were affecting operations	3	2	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 Treated Water Turbidity Alarms Daily grabs	4	2	8	

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
Low Lift Pumps	Low lift pump failures	Loss of water supply	Redundancy (3 pumps), scheduled maintenance activities, back-up generator for loss of power situations, alarms for power loss and low clearwell level, pump failure alarm 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
Filtration Process (includes flocculation, coagulation, dual media gravity filters)	Aluminum Sulphate feed pump failure	Ineffective removal of pathogens (minimum treatment requirements not met)	Redundancy (2 pumps), operator inspections (tank levels, calculate dosage), scheduled maintenance activities, pump failure alarm and plant shut down 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
	Polymer feed pump failure	Increased turbidity, ineffective removal of pathogens	Redundancy (3 pumps), operational control, operator inspections (tank levels, calculate dosage), scheduled maintenance activities, chemical pump failure alarm				<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input type="checkbox"/> No
	Pre-Soda Ash feed pump failure	Increased turbidity, ineffective removal of pathogens	Redundancy (2 pumps), operator inspections (tank levels, calculate dosage), scheduled maintenance activities, pump failure alarm and plant shut down Site specific EEP for Soda Ash Pump Failure				
	Chemical tank rupture	Loss of chemical, increased turbidity, ineffective removal of pathogens, potential for AWQI	Redundancy (2 tanks for alum, pre and post soda ash). Spill containment for all chemicals, chemical pump failure alarm, turbidity alarm				
	Filter breakthrough	Increased turbidity, ineffective removal of pathogens, potential for	Redundancy (2 filters), on-line monitoring of filter effluent turbidity, alarm on high turbidity, regular backwashes, scheduled				

Activity/ Process Step	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
		AWQI	maintenance activities, 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 and AWQI	On-line monitoring, scheduled maintenance activities, alternate system for backwashing (manual or automated) Site specific EEP for Backwash Failure (Filters)				
	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				
Clearwells/Reservoir	Low level	Inadequate contact time for primary disinfection Inadequate treated water supply	Redundancy (3 clearwells and 3 reservoirs), schedule maintenance and inspection activities, low level clearwell alarm, town ordered water conservation or ban, CT calc Site specific EEP for Water Supply Shortage	3	2	6	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No
	Clearwell out of service for repair, maintenance	Inadequate contact time for primary disinfection	Two-celled clearwell with isolation valves, increase chlorine dosage into clearwell, schedule controlled maintenance plan	3	2	6	
	Damage to outside hatch above reservoir	Potential for AWQI	Hatch is locked and regularly inspected.	2	3	6	
Chlorine Gas System (for primary disinfection)	Vacuum chlorinator failure	Loss of disinfection Low chlorine residual Inadequate inactivation of pathogens Potential for AWQI	Redundancy (2 chlorinators) In-house residual testing and dosage calculations Scheduled maintenance activities EEP for Vacuum Chlorinator Failure EEP for Low or High Chlorine Residual in Treated Water Standard Operating Procedure (SOP) for				<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?
			CT EEP for Reporting and Responding to Adverse Chlorine Residuals in Large Municipal Residential Systems (LMRS) Contingency Plan for Adverse Water/Potential and/or Unsafe Water				
	Cylinder failure	Loss of disinfection Low chlorine residual Inadequate inactivation of pathogens Potential for AWQI	Redundancy (1 standby cylinder) In-house residual testing and dosage calculations Scheduled maintenance activities Leak detection alarm EEP for Self Contained Breathing Apparatus EEP for Chlorine Cylinder Repair Kit				
	Analyzer failure	Unknown chlorine residual levels Potential for AWQI	Low chlorine residual alarm In-house residual testing Scheduled maintenance activities Spare parts SOP for Chlorine CT				
	Low supply of chlorine gas	Inadequate disinfection Potential for AWQI	Operator checks Chemical available within hub SOP for Chemical Sources				
Secondary Disinfection (Chloramination)	Pump failure	Loss of combined residual in distribution Failure to control biofilm and pathogens (longterm) Potential AWQI	Continuous on-line monitoring of total chlorine residual into the distribution system System-wide residual testing Scheduled maintenance (performed by township public works), Alarms for low/high chlorine residual in water entering distribution system EEP for Reporting and Responding to Adverse Chlorine Residuals in LMRS				<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?
	Low supply of ammonium sulphate	Inadequate disinfection Potential for AWQI	Operator checks Chemical available within hub SOP for Chemical Sources				
	Analyzer failure	Unknown chlorine residual levels Potential for AWQI	Low level alarm on total chlorine residual In-house residual testing Scheduled maintenance activities Free chlorine analyzer available for CT EEP for Low or High Chlorine Residual in Treated Water EEP for Reporting and Responding to Adverse Chlorine Residuals in Large Municipal Residential Systems (LMRS)				
	Post Soda Ash feed pump failure	Decreased pH in distribution system, increased colour	Redundancy (2 pumps), operator inspections (tank levels, calculate dosage), scheduled maintenance activities, pump failure alarm and plant shut down Site specific EEP for Soda Ash Pump Failure				
High Lift	High lift pump failures	Low pressure in distribution system, possible contamination due to infiltration	Redundancy (6 pumps), scheduled maintenance activities, operational control, on-line monitoring of discharge pressure, alarms for low pressure and pump failure, Site specific EEP for High Lift Pump Failure, EEP for Low Pressure Events in the Distribution System.	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	3	9	<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?
	Loss of residual in the distribution system	Potential for unsafe drinking water	Distribution system monitoring, flushing, system maintenance by the Township public works department, EEP for Reporting and Responding to Adverse Chlorine Residuals in Large Municipal Residential Systems (LMRS)				<input checked="" type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input type="checkbox"/> No
Water Treatment System	Power failure	Loss of treated water supply	Back-up diesel generator, Scheduled maintenance activities for back-up generator, Low fuel level alarm (gen-set), EEP for Power Failure of Long Duration, 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
	Standby power failure	Loss of treated water supply	Power failure alarm Standby generator available within 6-8 hours	3	4	12	<input type="checkbox"/> Yes – Mandatory CCP <input type="checkbox"/> Yes – Additional CCP identified for facility <input checked="" type="checkbox"/> No – no controls available

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 = 1.00 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)
Primary Disinfection	<p>Free Chlorine Residual Alarms - Treated Alarms Low set point = 1.00 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 Low or High Chlorine Residual in Treated Water • EEP for Reporting and Responding to Adverse Chlorine Residuals in Large Municipal Residential Systems
Secondary Disinfection	<p>Combined Chlorine Residual - Distribution Low = 0.25 mg/L High = 3.0 mg/L</p> <p>Free Chlorine Residual – Distribution Low = 0.05 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.

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 steps 5.10 and 5.11 of QP-02.

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

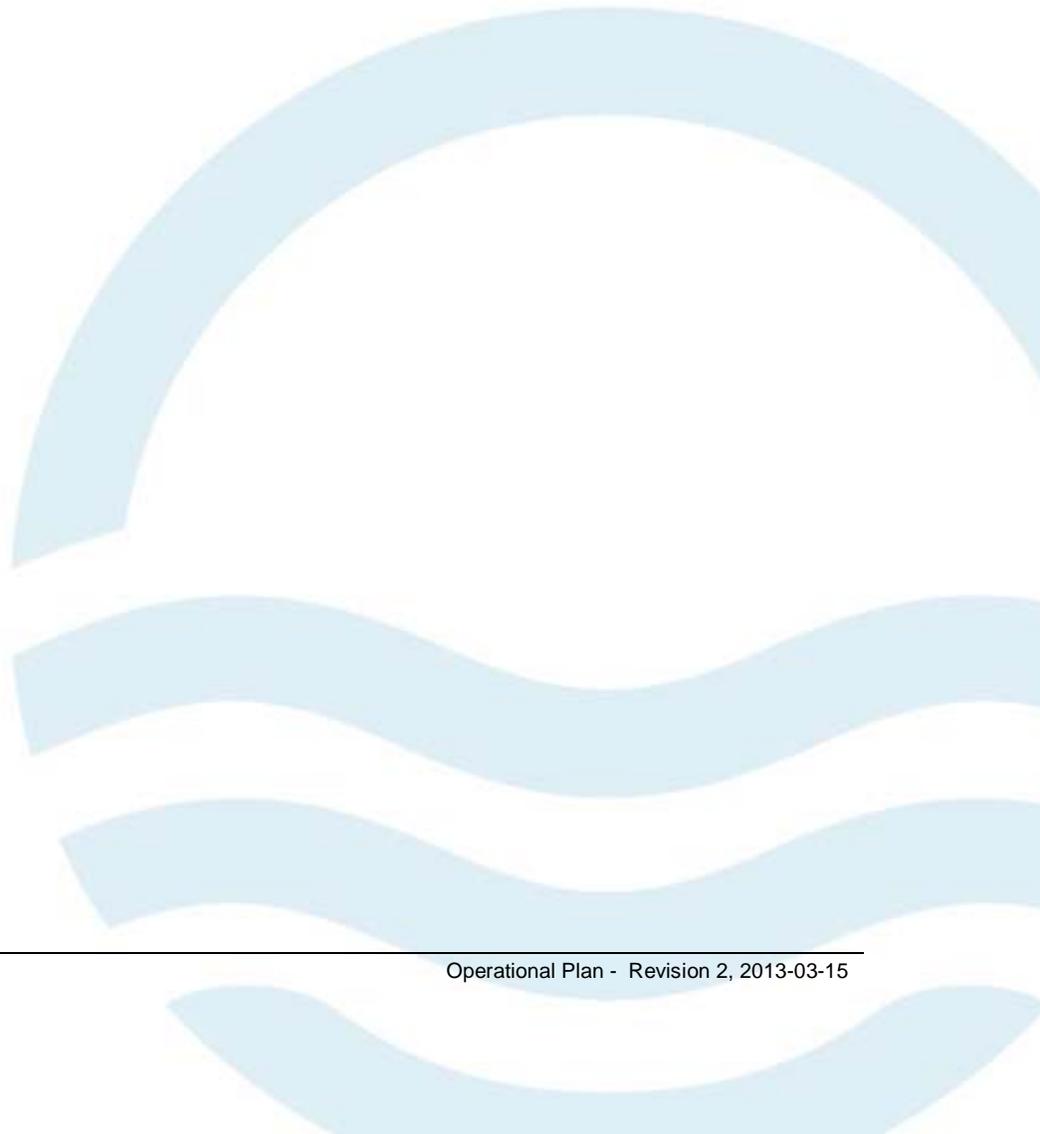
Date of Activity	Type of Activity	Participants	Summary of Results
2009-08-20	Risk Assessment	Amanda Dubuc (Process Compliance Technician), Chad Byce (Overall Responsible Operator), Rick Coote (Operator)	Conducted initial risk assessment.
2009-11-27	Review	Amanda Dubuc (PCT)	Desktop review prior to submission of Partial Accreditation application. No changes.
2010-10-04	Review	Amanda Dubuc (PCT), Eric Nielson (Senior Operations Manager), Chad Byce (ORO), Rick Coote (Operator)	Review during Internal Audit. No changes.
2010-10-14	Review	Amanda Dubuc (PCT), Eric Nielson (SOM), Brian Jibb (Operations Manager), Tony Janssen (SOM)	Review during management review meeting. No changes.
2011-08-09	Review	Amanda Dubuc (PCT), Eric Nielson (SOM), Chad Byce (ORO), Rick Coote (Operator), Josee Rousseau (Operator)	Review during Internal Audit. No changes.
2011-12-20	Review	Amanda Dubuc (PCT), Eric Nielson (PCM), Brian Jibb (OM), Tony Janssen (SOM)	Review during management review meeting. No changes.
2012-08-01	Review	Lisa Stasiuk (Regional Compliance Advisor), Amanda Dubuc (PCT), Ilona Bruneau (PCT), Chad Byce (ORO)	Review during Internal Audit. Changes listed in the revision history.
2012-08-30	Risk Assessment	Amanda Dubuc (PCT) and Chad Byce (ORO)	Conducted 36 month risk assessment re-do. Changes listed in the revision history.
2013-04-29	Review	Amanda Dubuc (PCT), Lisa Stasiuk (RCA), Chad Byce (ORO)	Review during external audit review. Changed set points in Table 2.

Revision History

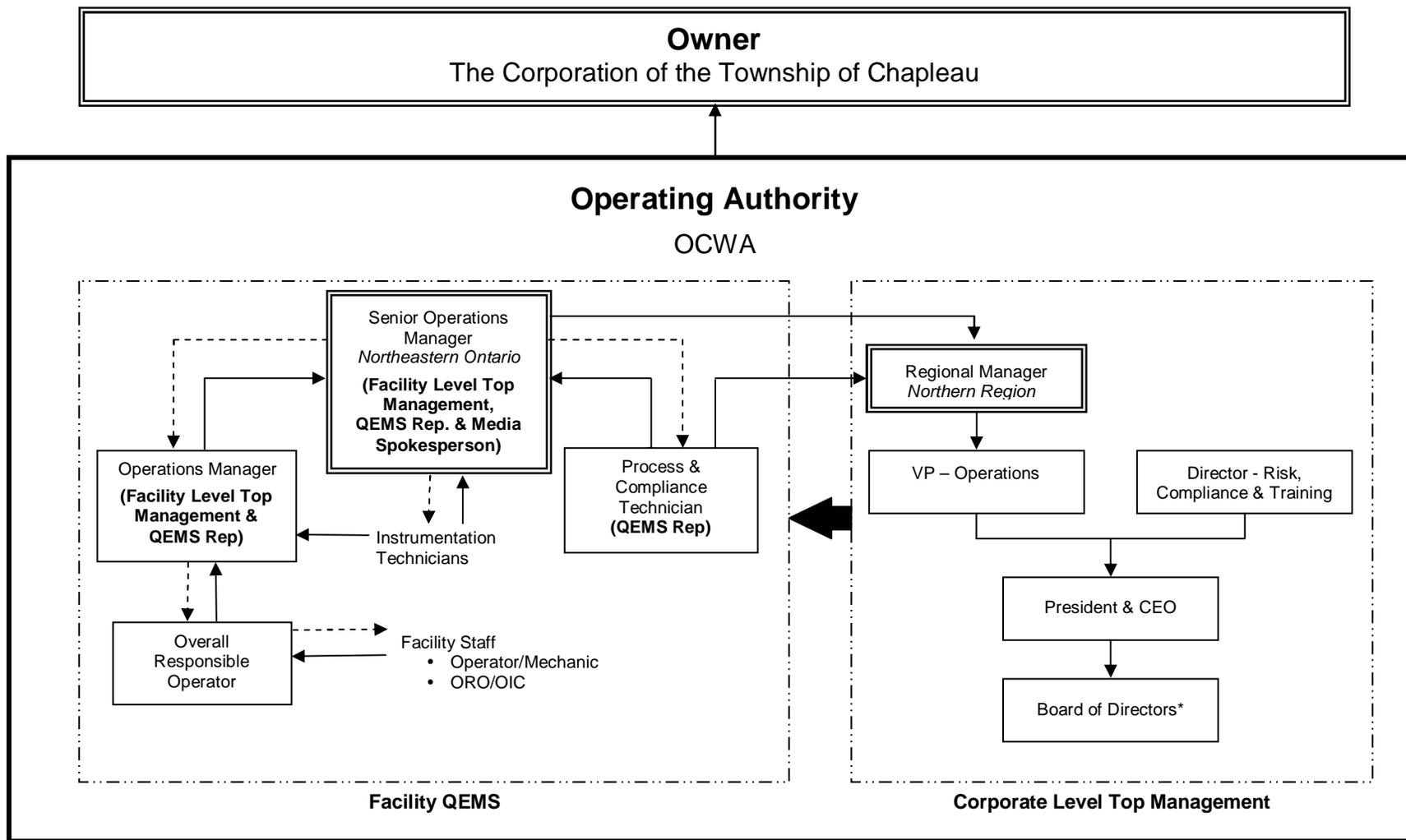
Date	Revision	Description of Revision
2009-08-20	0	Initial risk assessment conducted
2012-01-11	1	Template revised to include 'Record of Annual Review/36-Month Risk Assessment' (Table 3)
2012-11-09	2	Changed the title of the facility to Chapleau Water Treatment System. Added 'daily grab sample during Monday-Friday for pH, colour and turbidity, weekly alkalinity testing' as an existing control measure at the source, re-ranked the likelihood and consequence of biological spill, added 'pump failure alarm' as a control measure for low lift pumps, added 'pump failure alarm and plant shut down' as a control measure for alum feed pump failure, removed 'note' under polymer feed pump, added 'chemical tank rupture' and 'pre-soda ash feed pump failure' as a hazardous event to the filtration process, changed clearwell redundancy from '2 to 3' and re-ranked the likelihood and consequence, fixed a typo under clearwell hazardous event, added a control measure for clearwell out of service to 'adjust CT calculation for reduced clearwell time' and re-ranked the consequence, removed 'on-line monitoring with alarms' from chlorine cylinder failure, removed 'back up analyzers, shutdown on low residual' and added 'spare parts' to analyzer failure, fixed typo under secondary disinfection pump failure hazardous event, removed 'duplexed analyzer' and added 'free chlorine analyzer available for CT' under secondary disinfection analyzer failure, added 'post soda ash feed pump failure' hazardous event, added 'loss of residual in the distribution system' as a hazardous event, added 'pump failure alarm' and re-ranked likelihood and consequence under the high lift process step, re-ranked likelihood and consequence under power failure, added 'standby power failure' as a hazardous event, 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 and removed reference to Process Compliance Manager in Table 3. Changed the title of the facility to Chapleau Water Treatment System.
2013-04-29	3	Updated the turbidity and free chlorine CCP set point in Table 2.
2013-06-20	4	Changed title under CCP in Table 2 from 'Chlorine Gas System' to 'Primary Disinfection' and added river depth and temperature changes as a hazardous event for raw water.

Appendix D

QEMS Organizational Structure for the Chapleau Water Treatment System



QEMS Organizational Structure for the Chapleau Water Treatment System



Endorsement & Approval of the Facility's QEMS & Operational Plan
 Overall Leadership & Support for OCWA's QEMS

 Reports To

 Supervises/Directs

 Delineates Corporate & Facility Level Functions

* Represents the highest level of OCWA's Top Management

Appendix E

QP-03 Personnel Coverage

 Ontario Clean Water Agency	<h2>QEMS Procedure</h2>	Proc.: QP-03 Issued: 2013-03-15 Rev.#: 2 Pages: 1 of 2
Reviewed by: Amanda Dubuc, PCT	Approved by: Eric Nielson, Senior Operations Manager	

PERSONNEL COVERAGE

1.0 Purpose

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

2.0 Scope

Applies to operations personnel at the Chapleau Water Treatment System

3.0 Responsibility

Senior Operations Manager
 Operations Manager
 Overall Responsible Operator

4.0 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*)

5.0 Procedure

- 5.1 The Senior Operations Manager ensures that personnel meeting the competencies identified in the Operational Plan are available for duties that directly affect drinking water quality.
- 5.2 The Chapleau Water Treatment System is considered manned at the Chapleau WTP. OCWA operations personnel are remotely available 24 hours a day, 7 days a week by alarming systems. The sites are visited by OCWA operations daily between the hours of 07:30 to 16:00.
- 5.3 OCWA 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.

When the ORO is unavailable, the Operations Manager is designated as the ORO and is recorded as such in the facility logbook.

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

- 5.4 The 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 Tuesday morning at 07:30. The on-call schedule is maintained by the Operations Manager or designee and available to all on-call operators in the Microsoft Outlook Shared Calendar.
- 5.5 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 WMS.
- 5.6 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.
- 5.7 The 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.
- 5.8 OCWA's Operations staff are represented by the Ontario Public Service Employees Union (OPSEU). In the event of a labour disruption, the Senior 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.
- 5.9 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.

6.0 Related Documents

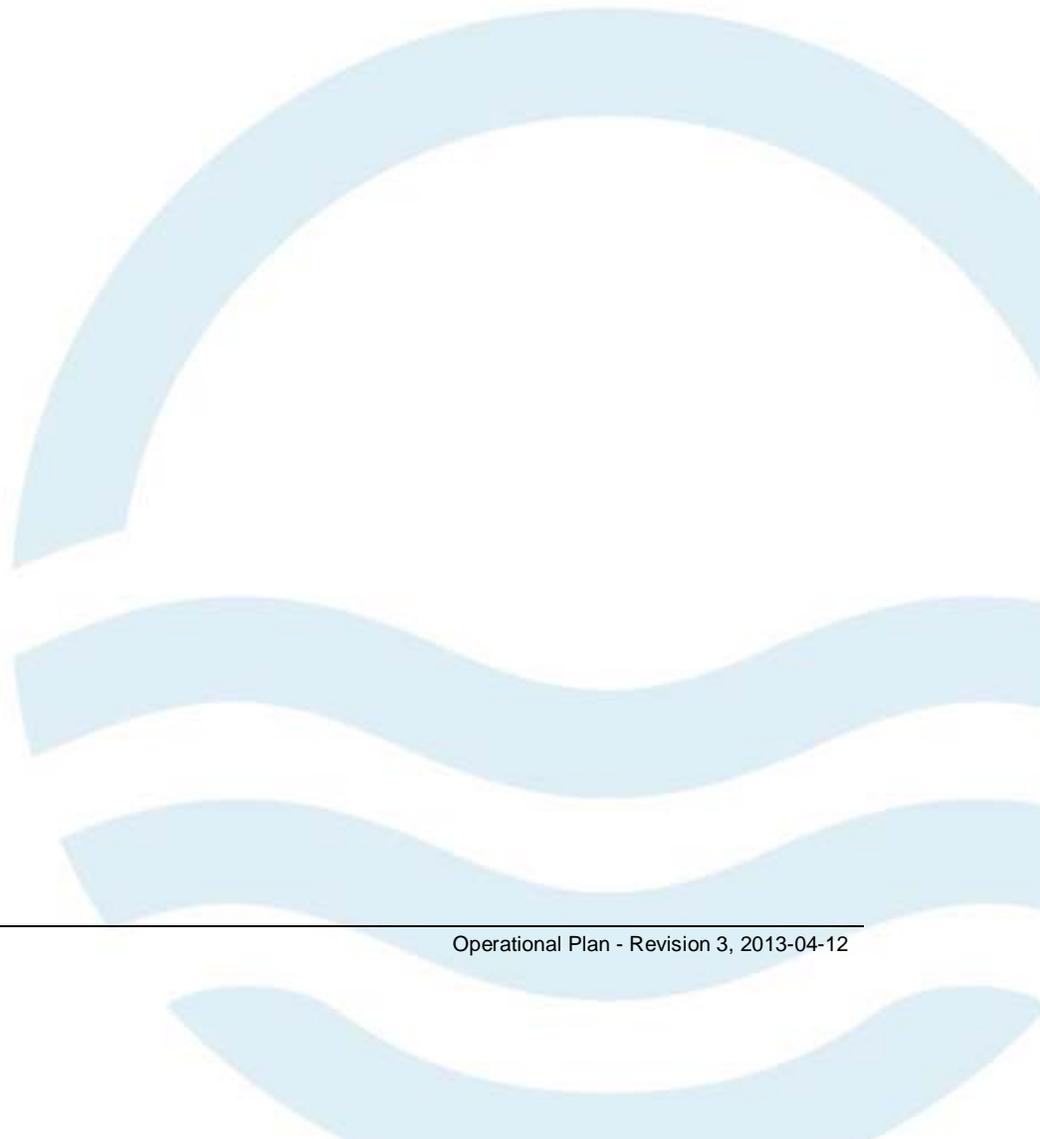
QP-01 Document and Records Control
Call-In Reports
Critical Shortage of Staff Contingency Plan (Facility Emergency Plan)
Facility Logbook
Facility Round Sheets
On-Call Schedule
Vacation Schedule

7.0 Revision History

Date	Revision	Reason for Revision
2010-02-01	0	Procedure issued
2012-01-11	1	Procedure 5.9 was added to reference contingency planning for Critical Shortage of Staff
2013-03-15	2	Change title of plan to 'Chapeau Water Treatment System'. 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.

Appendix F

QP-04 Communications



 Ontario Clean Water Agency	<h2>QEMS Procedure</h2>	Proc.: QP-04 Issued: 2013-04-12 Rev.#: 3 Pages: 1 of 3
Reviewed by: Amanda Dubuc, PCT	Approved by: Eric Nielson, Senior Operations Manager	

COMMUNICATIONS

1.0 Purpose

To describe the procedures for QEMS-related communications between the facility's Top Management and OCWA personnel, the owner, suppliers and the public

2.0 Scope

Applies to facility level internal and external communications regarding the Quality & Environmental Management System (QEMS) implemented at the Chapleau Water Treatment System.

3.0 Responsibility

Senior Operations Manager (Facility Level Top Management)
 Operations Manager (Facility Level Top Management)
 Overall Responsible Operator
 Process & Compliance Technician (PCT)
 Regional Manager (Corporate Level Top Management)

4.0 Definitions

None

5.0 Procedure

5.1 The Senior Operations Manager and PCT are responsible for identifying and coordinating any site-specific communications in relation to the status/development of the facility's QEMS. They are also responsible for ensuring that the Regional Manager is promptly informed regarding QEMS-related matters with Agency-wide significance.

5.2 Upon hire, OCWA personnel are scheduled to attend the Environmental Compliance course which provides general awareness training on OCWA's QEMS.

The Senior Operations Manager, PCT and/or Operations Manager ensures facility personnel receive site-specific training on the Operational Plan, QEMS Procedures and other related operating instructions and procedures as part of the orientation process.

Revisions to the QEMS and associated documentation are communicated to relevant employees at meetings, through internal memos or e-mails on an as-needed basis. The Operational Plan and procedures are available to all facility employees and the public as per Table 1 of QP-01 Document and Records Control.

The QEMS Policy and an overview of the QEMS are available to all OCWA personnel through OCWA's intranet. The QEMS Policy is publicly accessible on OCWA's internet website.

5.3 The continuing suitability, adequacy and effectiveness of OCWA's QEMS are communicated to the owner as part of the Management Review process (refer to

QEMS Procedure QP-11 Management Review). Ongoing QEMS updates are provided to the owner during scheduled meetings and through electronic and verbal communications.

- 5.4 Communication requirements for ensuring suppliers and contractors understand the relevant OCWA QEMS policies, procedures and expectations are described in QEMS Procedure QP-05 Essential Supplies and Services.
- 5.5 Media enquiries must be directed to the facility's designated media spokesperson. The Senior Operations Manager and/or Operations Manager is the media spokesperson for the Chapleau Water Treatment System. The media spokesperson coordinates with facility and corporate personnel (as appropriate) and the Owner in responding to media enquiries.
- 5.6 OCWA's QEMS and QEMS Policy are communicated to the public through OCWA's public website. The QEMS Policy is also posted at the Chapleau WTP.

Facility tours of interested parties must be approved in advance by the Operations Manager or designate. A record of any tour is made in the facility logbook.

All complaints, whether received from the consumer, the community or other interested parties, are documented in the OPEX database. As appropriate, the Operations Manager or Senior Operator ensures that the Owner is informed of the complaint and/or an action plan is developed to address the issue in a timely manner. Complaints will be included for discussion at the Management Review.

- 5.7 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 QEMS Procedure QP-09 Emergency Management.

6.0 Related Documents

QP-01 Document and Records Control
 QP-05 Essential Supplies and Services
 QP-09 Emergency Management
 QP-11 Management Review
 Community Complaint Form
 Emergency Response Plan
 Facility Emergency Plan
 Facility Logbook
 OPEX Incident Reports

7.0 Revision History

Date	Revision	Reason for Revision
2010-02-01	0	Procedure issued
2012-01-11	1	Correction of some employee titles and update to Procedure 5.2 to include information how revisions are communicated
2013-03-15	2	Change title of plan to 'Chapleau Water Treatment System'. 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.

Date	Revision	Reason for Revision
2013-04-12	3	Addressed non-conformance report 2013-01 to include a second publicly accessible location for the operational plan. This change was made in procedure 5.2.



Appendix G

QP-05 Essential Supplies and Services

 Ontario Clean Water Agency	<h2>QEMS Procedure</h2>	Proc.: QP-05 Issued: 2013-06-20 Rev.#: 3 Pages: 1 of 2
Reviewed by: Amanda Dubuc, PCT	Approved by: Eric Nielson, Senior Operations Manager	

ESSENTIAL SUPPLIES and SERVICES

1.0 Purpose

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

2.0 Scope

Applies to essential supplies and services pertaining to the Chapleau Water Treatment System, as identified in this procedure.

3.0 Responsibility

Corporate Procurement and Administration
 Senior Operations Manager
 Operations Manager
 Overall Responsible Operator
 Process & Compliance Technician (PCT)

4.0 Definitions

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

5.0 Procedure

- 5.1 Essential supplies and services for the Chapleau Water Treatment System are listed in the Contact List Section of the Facility Emergency Plan binder. The list is reviewed and updated as required by the PCT or designate.
- 5.2 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.
- 5.3 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/service providers (including those contracted locally) are sent a letter that provides an overview of the relevant aspects of the QEMS.
- 5.4 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.

- 5.5 All third-party drinking water testing services are provided by accredited and licensed laboratories.
- 5.6 Calibration services are provided by qualified personnel.
- 5.7 Chemicals purchased for use in the drinking water treatment process must meet AWWA Standards and be ANSI/NSF certified.

The facility orders and receives ongoing deliveries of chemicals to satisfy current short-term needs based on processing volumes and storage capacities.
- 5.8 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.
- 5.9 All supplies purchased, once received, are inspected and/or verified to ensure that an acceptable product is received.

6.0 Related Documents

QP-01 Document and Records Control
Essential Supplies and Services List

7.0 Revision History

Date	Revision	Reason for Revision
2010-02-01	0	Procedure issued
2012-01-11	1	Addition of Procedure 5.3 clarifying how suppliers are informed of relevant aspects of OCWA's QEMS
2013-03-15	2	Change title of plan to 'Chapeau Water Treatment System'. 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.
2013-06-20	3	Added statement to ensure that received product and services are verified upon receipt and prior to use, see procedure 5.3.

Appendix H

QP-06 Review and Provision of Infrastructure



QEMS Procedure

Proc.: QP-06
Issued: 2013-03-15
Rev.#: 2
Pages: 1 of 1

Reviewed by: Amanda Dubuc, PCT

Approved by: Eric Nielson, Senior Operations Manager

REVIEW and PROVISION of INFRASTRUCTURE

1.0 Purpose

To describe OCWA's procedure for reviewing the adequacy of infrastructure necessary to operate and maintain a drinking water system

2.0 Scope

Applies to the Chapleau Water Treatment System

3.0 Responsibility

Senior Operations Manager
Operations Manager
Owner/Municipal Representative(s)

4.0 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

5.0 Procedure

- 5.1 On an annual basis, the Senior Operations Manager and/or designate conducts a review of the drinking water system's infrastructure to assess its adequacy for the operation and maintenance of the system.
- 5.2 The output of the review is a letter, summarizing capital works recommendations and estimated expenditures, is submitted to the owner for review and comment. Together with the owner, timelines and responsibilities for implementation of priority items are determined and documented.
- 5.3 The Senior Operations Manager, Operations Manager or designate ensures that results of the review are included as input to the Management Review process.

6.0 Related Documents

QP-01 Document and Records Control
Letter of Capital Works Recommendations
Minutes of Management Review

7.0 Revision History

Date	Revision	Reason for Revision
2010-02-01	0	Procedure issued
2012-01-11	1	Revised to include the position of Process Compliance Manager
2013-03-15	2	Change title of plan to 'Chapleau Water Treatment System'. 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.

Appendix I

QP-07 Sampling, Testing and Monitoring

 Ontario Clean Water Agency	<h2>QEMS Procedure</h2>	Proc.: QP-07 Issued: 2013-06-20 Rev.#: 3 Pages: 1 of 3
Reviewed by: Amanda Dubuc, PCT	Approved by: Eric Nielson, Senior Operations Manager	

SAMPLING, TESTING and MONITORING

1.0 Purpose

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

2.0 Scope

Applies to sampling, testing and monitoring at the Chapeau Water Treatment System

3.0 Responsibility

Senior Operations Manager
 Operations Manager
 Process & Compliance Technician (PCT)
 Overall Responsible Operator
 Operators

4.0 Definitions

Challenging Conditions – any existing characteristic of the water source or event-driven fluctuations that impact the operational process as identified and listed under the Drinking Water System section in the facility's Operational Plan

5.0 Procedure

5.1 All sampling, monitoring and testing is conducted at a minimum in accordance with SDWA O. Reg. 170/03. Adverse water quality incidents are responded to and reported as per the Environmental Emergency Procedures (EEP) pertaining to adverse results and can be found in the Facility Emergency Plan Binder.

5.2 Samples are submitted to an accredited and licensed laboratory according to the facility's sampling schedule. The sampling schedule is maintained by the PCT and is updated as required.

All analytical results from laboratory reports are entered/uploaded into PDC. Hardcopy reports are maintained as per QP-01 Document and Records Control.

5.3 Continuous monitoring equipment is used to collect and record information on the following parameters related to process control and finished drinking water quality:

Chapeau WTP

- Discharge pressure – treated/distribution water (point of entry)
- Flow rates – raw and treated water
- Free Chlorine Residual – treated water
- Level – clearwells and reservoirs
- Total Chlorine Residual – treated/distribution water (point of entry)
- Turbidity – filter 1 and 2

Data from continuous monitoring equipment is captured by OCWA's SCADA system and are stored electronically on the INSQL server. Results are reviewed by a certified operator in accordance with the requirements of SDWA O. Reg. 170/03. A Standard Operating Procedure for the Continuous Monitoring of Operational Parameters for Drinking Water Systems is available in the Facility Emergency Plan Binder.

- 5.4 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 Treated water	Grab daily*
Aluminum Residual	Treated water	Grab weekly
Aluminum Sulphate Usage	Chemical room	Reading daily
Chlorine Gas	Chemical room	Reading daily
Colour	Raw water Treated water	Grab weekly
Free, Combined and Total Chlorine Residual	Treated water Distribution water (various locations)	Grab daily*
pH	Raw water Treated water	Grab daily*
Polymer	Chemical room	Reading daily
Soda Ash Usage (Pre and Post)	Chemical room	Reading daily
Temperature	Raw water Treated water	Grab daily*
Turbidity	Raw water Treated water	Grab daily*

*Grab daily = Monday to Friday

In-house samples are analyzed following approved laboratory procedures. The results of these activities are recorded on a round sheet and are entered into PDC. Any adjustments made to process parameters are recorded in the facility log book.

- 5.5 Additional sampling, testing and monitoring activities related to the facility's most challenging conditions are captured within the existing in-house program described above. As well, any other sampling requested by the system owner would be conducted.
- 5.6 There are no required upstream sampling, testing and monitoring activities that take place for this facility/system.
- 5.7 Sampling, testing and monitoring results are readily accessible to the owner at the Municipal Office and/or the Chapleau Water Treatment Plant.

As a minimum, owners are provided with an annual summary of sampling, testing and monitoring results through the SDWA O. Reg. 170/03 section 11 and schedule 22 reports and through the Management Review process outlined in QP-11 Management Review.

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

6.0 Related Documents

QP-01 Document and Records Control
QP-11 Management Review
Annual Report
Continuous Monitoring of Operational Parameters for Drinking Water Systems SOP (FEP Binder)
Facility Emergency Plan (FEP) Binder
Facility Logbook
Laboratory Analysis Reports
Laboratory Chain of Custody Forms
Municipal Summary Report
Reporting and Responding to Adverse Results (FEP Binder)
Round Sheets
Sampling Schedule

7.0 Revision History

Date	Revision	Reason for Revision
2010-02-01	0	Procedure issued
2012-01-11	1	Addition of Process and Compliance Manager (3.0 Responsibility) and clarification of sampling under 5.0 Procedure
2013-03-15	2	Change title of plan to 'Chapleau Water Treatment System'. Revised position titles; Operations Manager has been changed to Senior Operations Manager, Cluster Manager has been changed to Senior Operations Manager, and Process Compliance Manager has been removed as the position was discontinued.
2013-06-20	3	Added detail that additional sampling would be conducted when requested by owner.

Appendix J

QP-08 Measurement and Recording Equipment Calibration and Maintenance

 Ontario Clean Water Agency	<h2>QEMS Procedure</h2>	Proc.: QP-08 Issued: 2013-03-15 Rev.#: 2 Pages: 1 of 2
Reviewed by: Amanda Dubuc, PCT	Approved by: Eric Nielson, Senior Operations Manager	

MEASUREMENT and RECORDING EQUIPMENT CALIBRATION and MAINTENANCE

1.0 Purpose

To describe the procedure for the calibration and maintenance of measurement and recording equipment

2.0 Scope

Applies to the measurement and recording equipment at the Chapleau Water Treatment System

3.0 Responsibility

Senior Operations Manager
 Process & Compliance Technician (PCT)
 Overall Responsible Operator
 Instrumentation Technicians

4.0 Definitions

None

5.0 Procedure

- 5.1 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 QP-05 Essential Supplies and Services).
- 5.2 The Instrumentation Technician or designate establishes and maintains a list of measurement and recording devices and associated calibration schedules using the automated Work Management System (WMS).
- 5.3 Calibration and maintenance activities are carried out in accordance with procedures specified in the manufacturer's manual, instructions specified in WMS.
- 5.4 Any measurement device which does not meet its specified performance requirements during calibration must be removed from service (if practical) until repaired or replaced. The failure must be reported to the Senior Operations Manager, Operations Manager or designate 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. Any notifications required by applicable legislation are completed and documented within the specified time period.
- 5.5 Calibration and maintenance records and maintenance/equipment manuals are maintained as per QP-01 Document and Records Control.

6.0 Related Documents

QP-01 Document and Records Control

QP-05 Essential Supplies and Services
Calibration/Maintenance Records
Facility Logbook
WMS Records

7.0 Revision History

Date	Revision	Reason for Revision
2010-02-01	0	Procedure issued
2012-01-11	1	Revised to include proper title for Process Compliance Manager
2013-03-15	2	Change title of plan to 'Chapleau Water Treatment System'. 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.



Appendix K

QP-09 Emergency Management

 Ontario Clean Water Agency	<h2>QEMS Procedure</h2>	Proc.: QP-09 Issued: 2013-03-15 Rev.#: 3 Pages: 1 of 2
Reviewed by: Amanda Dubuc, PCT	Approved by: Eric Nielson, Senior Operations Manager	

EMERGENCY MANAGEMENT

1.0 Purpose

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

2.0 Scope

Applies to potential operations emergency situations or service interruptions identified for the Chapleau Water Treatment System.

3.0 Responsibility

Corporate Compliance Group
 Senior Operations Manager
 Operations Manager
 Overall Responsible Operator
 Process & Compliance Technician (PCT)

4.0 Definitions

Facility Emergency Plan – a facility level plan for preparedness for operations emergencies that can be managed by plant staff and local resources

Emergency Response Plan – a corporate level plan for preparedness for serious operations emergencies

5.0 Procedure

5.1 The Corporate Compliance Group maintains the corporate level Emergency Response Plan and the OCWA template for establishing a plan for facility level emergencies (the "Facility Emergency Plan" template). The Senior Operations Manager (or designate) ensures that a site-specific Facility Emergency Plan is established and kept up-to-date for each facility in the Hub.

5.2 OCWA has established a list of mandatory contingencies for potential emergency situations or service interruptions. These are:

- Potential or actual unsafe water
- Catastrophic equipment failure that impacts the ability to provide service
- Power failure that impacts the ability to provide service
- Accidental release that could impact the environment
- Critical injury
- Critical shortage of staff
- Forest fire

The Senior Operations Manager or designate ensures that a site-specific contingency plan defining the processes for response and recovery is in place for each of the mandatory contingencies (as applicable) and that additional contingency plans to address site-specific risks and hazards are identified and developed.

Mandatory and site-specific contingencies for the Chapleau Water Treatment System are contained within the Facility Emergency Plan and are referred to as Environmental Emergency Procedures.

- 5.3 Each contingency plan must be reviewed at a minimum annually and at least one plan must be tested each year. Training on the Facility Emergency Plan is provided on an ongoing basis.
- 5.4 Roles and responsibilities for emergency management at OCWA operated facilities are set out in the Facility Emergency Plan under the “Roles and Responsibilities” section. Specific roles and responsibilities related to a particular emergency situation or service interruption, including those of the owner where necessary, are set out in the relevant contingency plan.
- 5.5 Relevant sections of the Municipal Emergency Plan, which may also contain additional information on emergency roles and responsibilities, are contained in the “Appendices” section of the Facility Emergency Plan and are incorporated into contingency plans when appropriate.
- 5.6 An emergency contact list is contained and an Essential Suppliers and Services within the Facility Emergency Plan and is reviewed and/or updated at least annually. Protocols for communication during emergency situations or service interruptions are set out in the individual contingency plans and in OCWA’s Emergency Response Plan.

6.0 Related Documents

QP-01 Document and Records Control
Emergency Contact List
Emergency Response Plan
Essential Suppliers and Services List
Facility Emergency Plan
Municipal Emergency Plan

7.0 Revision History

Date	Revision	Reason for Revision
2010-02-01	0	Procedure issued
2012-01-11	1	Corrected Process Compliance Manager’s title
2012-11-13	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. Added forest fire contingency.
2013-03-15	3	Change title of plan to ‘Chapleau Water Treatment System’.

Appendix L

QP-10 Internal QEMS Audits

 Ontario Clean Water Agency	<h2>QEMS Procedure</h2>	Proc.: QP-10 Issued: 2013-03-15 Rev.#: 2 Pages: 1 of 2
Reviewed by: Amanda Dubuc, PCT	Approved by: Eric Nielson, Senior Operations Manager	

INTERNAL QEMS AUDITS

1.0 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).

2.0 Scope

Applies to all activities within the scope of the QEMS implemented at the Chapleau Water Treatment System as documented in the Operational Plan

Note: this procedure does not include the facility's internal compliance audits conducted in accordance with OCWA's Internal Audit Program.

3.0 Responsibility

Senior Operations Manager
 Operations Manager
 Overall Responsible Operator
 Corporate Compliance Group
 Process & Compliance Technician (PCT)

4.0 Definitions

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

Internal Auditor – person with skills, training and/or experience to conduct an internal audit

Nonconformity – non-fulfillment of a requirement

5.0 Procedure

- 5.1 The Senior Operations Manager ensures that an internal QEMS audit is conducted for the facility at least once every 12 months by personnel with adequate skills, training and/or experience.
- 5.2 In consultation with the PCTs and/or OCWA's Corporate Compliance Group establishes the audit criteria and develops the internal audit protocol to be used by the facility's auditor(s). Protocol questions are designed to encompass all of the requirements of the DWQMS. Additional information is included in the protocol to provide clarification on the purpose and application of the requirement. The protocol is reviewed annually and updated as necessary with guidance from the Corporate Compliance Group.
- 5.3 The auditor(s) reviews the facility's approved policies and procedures, the results of previous internal and external QEMS audits, the status of corrective and preventive actions and other QEMS-related documentation prior to the audit.

- 5.4 The auditor(s) follows the audit protocol and engages in activities that may include asking questions, observing operations and reviewing documents and records. Non-conformities with reference to specific documents and details are recorded on the audit protocol along with any additional comments and suggestions.
- 5.5 Upon completion of the final audit report, the auditor(s) reviews the results and identified nonconformities with the Senior Operations Manager Operations Manager or designate. The audit report and supporting documentation are filed by the QEMS Representative and retained as per QP-01 Document and Records Control.
- 5.6 When nonconformity is identified through the internal audit process, an action plan to rectify the issue is developed by the auditor, specifying responsibility and a target date for resolution. The Senior Operations Manager or designate monitors progress of the action plan related to the identified nonconformity until it is fully resolved.
- The QEMS Representative ensures that any necessary revisions to QEMS procedures and policies are completed and communicated to relevant facility personnel.
- 5.7 The QEMS Representative ensures that results of the audit are included as input to the management review process.

6.0 Related Documents

QP-01 Document and Records Control

Action Plans

Audit Reports

Internal Audit Protocol

7.0 Revision History

Date	Revision	Reason for Revision
2010-02-01	0	Procedure issued
2012-01-11	1	Clarification of time frames in Procedure 5.1; corrected Process Compliance Manager's title; updated the development of audit protocol in Procedure 5.2
2013-03-15	2	Change title of plan to 'Chapleau Water Treatment System'. 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.

Appendix M

QP-11 Management Review

 Ontario Clean Water Agency	<h2>QEMS Procedure</h2>	Proc.: QP-11 Issued: 2013-03-15 Rev.#: 2 Pages: 1 of 2
Reviewed by: Amanda Dubuc, PCT	Approved by: Eric Nielson, Senior Operations Manager	

MANAGEMENT REVIEW

1.0 Purpose

To describe the procedure for conducting a Management Review of the Quality & Environmental Management System (QEMS) at the facility level.

2.0 Scope

Applies to the review of the QEMS implemented at the Chapleau Water Treatment System.

3.0 Responsibility

Facility Level Top Management:

- Senior Operations Manager
- Operations Manager

Other Management Review Participants:

- Process & Compliance Technician (PCT)
- Overall Responsible Operator (as required)
- Operators (as required)
- Regional Compliance Advisor (as required)
- Corporate Compliance Advisor (as required)
- Regional Manager (as required)

4.0 Definitions

Management Review – a formal (documented) meeting conducted at least once every 12 months by Top Management to evaluate the continuing suitability, adequacy and effectiveness of OCWA's Quality & Environmental Management System (QEMS)

5.0 Procedure

5.1 The Senior Operations Manager determines a suitable frequency for Management Review meetings for the drinking water system. As a minimum, reviews must be conducted at least once every 12 months.

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 5.2 below are taken into account for each individual system and documented in the Management Review meeting minutes.

5.2 The standing agenda for Management Review meetings is as follows:

- a) Incidents of regulatory non-compliance,
- b) Incidents of adverse drinking water tests,
- c) Deviations from critical control limits and response actions,
- d) The efficacy of the risk assessment process,
- e) Internal and third-party audit results,
- f) Results of emergency response testing,
- 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, and
- p) Staff suggestions.

The QEMS Representative coordinates the Management Review and distributes the agenda with identified responsibilities to participants in advance of the Management Review meeting along with any related reference materials.

- 5.3 The Management Review participants review the data presented and make recommendations and/or initiate action plans to address identified deficiencies as appropriate.
- 5.4 The QEMS Representative ensures that minutes of and action plans resulting from the Management Review meeting are prepared and distributed to the appropriate OCWA management (including the Regional Manager) and personnel and the municipality.
- 5.5 The Senior Operations Manager or designate monitors the progress and documents the completion of action plans resulting from the Management Review.

6.0 Related Documents

QP-01 Document and Records Control

Minutes and action plans resulting from the Management Review

7.0 Revision History

Date	Revision	Reason for Revision
2010-02-01	0	Procedure issued
2012-01-11	1	Corrected Process Compliance Manager's title
2013-03-15	2	Change title of plan to 'Chapleau Water Treatment System'. 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.

Appendix N

Subject System Description Form (Schedule C)

Schedule "C"

Subject System Description Form			
Municipal Residential Drinking-Water System			
Owner of Municipal Residential Drinking-Water System: ¹		The Corporation of the Township of Chapleau	
Name of Municipal Residential Drinking-Water System: ²		Chapleau Drinking Water System	
Subject Systems			
	Name of Operational Subsystems (if applicable)	Name of Operating Authority	DWS Number(s)
<input type="checkbox"/> Check here if the Municipal Residential Drinking-Water System is operated by one operating authority. Enter the name of the operating authority in adjacent column ⁴			
Operational Subsystem 1:	Treatment System	Ontario Clean Water Agency	220003494
Operational Subsystem 2:	Distribution System	Corporation of the Township of Chapleau	220003494
Contact Information			
Name	Title	Phone No(s).	Email Address
Primary: Amanda Dubuc	Process & Compliance Technician	Office: (705) 672-5549 Cell: (705) 648-4267	adubuc@ocwa.com
Alternate: Brian Jibb	Operations Manager	Office: (705) 567-3955 Cell: (705) 642-5341	bjibb@ocwa.com
Alternate: Chad Byce	Senior Operator/Mechanic	Office: (705) 864-0105 Cell: (705) 864-4434	cbyce@ocwa.com

Subject System Description Form Notes:

1. The legal name of the owner should be used for this entry.
2. The name of the municipal residential drinking-water system should be the name most commonly used to describe the entire system. If information or records have been submitted to the ministry respecting this system, using an identifier name (e.g. for DWS), that identifier name should be used.
3. The identification of each operational subsystem will be necessary in cases where the municipal residential drinking-water system is being operated by more than one operating authority. For example, if a municipality owns a treatment and distribution system but contracts the operation of the treatment system to a separate entity there will be two 'operational subsystems', treatment and distribution. The name used to identify these operational subsystems should be one that is commonly used or describes the component. For example, the Everytown Treatment System and the Everytown Distribution System as separate operational subsystems of the same municipal residential drinking-water system.
4. If there is only one operating authority for the municipal residential drinking-water system, the box should be checked as such. In this case the subject system is the municipal residential drinking-water system and there will be no operational subsystem. The operating authority will need to be identified in the adjacent box.
5. The legal or corporate name of the operating authority should be used for this entry.
6. The DWS number is the number, or numbers, assigned to the drinking-water system by the Ministry of the Environment in response to the owner submitting a written notice containing information about the system further to section 10.1 of O. Reg. 170/03. In some cases multiple DWS numbers may exist for components of a municipal residential drinking-water system. In these cases enter all DWS numbers. Conversely, if one DWS number exists for multiple subject systems, enter the number opposite each operational subsystem.
7. The contact entry should identify a person who may be contacted for clarification of information contained in the form. An alternate person may also be identified.