Town Of Latchford
Owner and Operating Authority

Latchford Drinking Water System

Quality Management System
Operational Plan

October 4, 2016

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Introduction

The use of quality management systems has repeatedly proven to be beneficial to businesses in terms of accountability, quality control, efficiency and productivity.

The following recommendations were made by Justice O'Connor in the Part II report of the Walkerton Inquiry,

- Drinking water systems should be operated by authorities that are accredited based on successful third party audits conducted by a certified accrediting body.
- The Ministry of the Environment, in partnership with other relevant stakeholders, should develop a Drinking Water Quality Management Standard against which the third party audits will be conducted.
- All municipalities should prepare Operational Plans describing how the requirements of the Quality Management Standard are achieved.

In conformance with the MOE's prescribed Drinking Water Quality Management Standard, the Town of Latchford has developed and implemented an Operational Plan that outlines the processes and procedures for the overall quality management and operations of the drinking water treatment and distribution system.

1. Quality Management System

This Operational Plan addresses the requirements of the Drinking Water Quality Management Standard for the Town of Latchford water treatment and distribution system. The Town of Latchford is the Owner of the Drinking Water System. The Owner, Council, is represented by the Mayor.

The Town of Latchford is the Operating Authority and the Ontario Clean Water Agency (OCWA) is the Overall Responsible Operator.

The Quality Management System and its several components are either contained or referred to within the body of the Operational Plan. All System Level Procedures (SLP), those required by the DWQMS, are referenced in this plan and included as appendices (see List of Appendices). When necessary (as required by the DWQMS or determined by the Operating Authority), Standard Operating Procedures (Task Level Documentation) are referenced in this Operational Plan narrative and/or in the over-riding SLP.

2. Quality Management System Policy

The Corporation of the Town of Latchford
Quality Management System Policy

The Corporation of the Town of Latchford owns, operates and maintains the Latchford Drinking Water System.

As the operating authority The Town of Latchford is committed to:

- Providing safe drinking water to the consumer
- Ensuring compliance to all legislative and regulatory requirements applicable to the production and distribution of safe drinking water
- Ongoing maintenance and continual improvement of the Quality Management System as document in this Operational Plan and referenced documents.

The Corporation of the Town of Latchford
Dec/2013
December, 2013

The Quality Management System Policy shall be posted in the Municipal Office and the drinking Water Treatment Plant. This policy shall be made available to the public upon request.

3. Commitment and Endorsement

The Owner (represented by the Mayor of Latchford) and Top Management of the Operating Authority have endorsed this Operational Plan as evidenced by the signatures below.

Mayor - George Lefebvre
Town of Latchford

Municipal Clerk – Jaime Allen
Town of Latchford

Top Management shall further demonstrate its endorsement of this Operational Plan shall by:

a.) Ensuring that a QMS that meets the requirements of the DWQMS has been developed, communicated and effectively implemented and that necessary resources are provided for the maintenance and improvement of the same, and

b.) Ensuring that those responsible for the maintenance and improvement of the QMS and the waterworks are aware of all applicable legislation and regulations as they pertain to the production and delivery of safe drinking water.

4. Quality Management System Representative

The Ontario Clean water Agency's Process & Compliance Technician has been appointed by Top Management to the role of QMS Representative.

The QMS Representative has the responsibility to and the authority to administer the QMS. The responsibilities and authorities include:

a.) Ensuring that the processes and procedures required for a QMS are consistent with the type, size and complexity of the subject waterworks, are documented, implemented and maintained.

b.) Ensuring that processes and procedures are in place for reporting on the performance of the QMS to Top Management, including any need for improvement.

c.) Ensure documentation remains current and readily available.

d.) Supporting Top Management's commitment by taking action to ensure that all applicable legislation and regulations, and relevant aspects of the QMS are effectively communicated, as appropriate to operating authority personnel.

e.) Promoting the benefits and value of the QMS to all stakeholders.

5. Documents and Record Control

A Master List of Documents can be found in Appendix C of this Operational Plan. The Master List identifies the Document title and the current revision status of all QMS Documentation.

The QMS Rep ensures that current versions of all documents are in use at all times through the development, implementation and regular audit of the Document Control Procedure. All QMS Procedures, Work Instructions, the Operational Plan, QMS Forms and Templates are subject to Document Control.

A Control of Records procedure has been developed and implemented to ensure that the records required by the DWQMS and the Operational Plan are properly maintained for use, protected, available when and where required, retained and properly disposed of.

Records are maintained as objective evidence of conformance to the DWQMS.

The Control of Documents Procedure is attached in Appendix A.

6. Drinking Water System

General Process Description

The Drinking Water System provides a potable water supply to the community of Latchford. The treatment facility is a Class II water treatment plant having an approved capacity of 500 m^3/d. The Latchford Water Treatment Plant (LWTP) and the accompanying Class II Water Distribution System are owned by the Town of Latchford and operated by The Town of Latchford Public Works Department. The Ontario Clean Water Agency provides Overall Responsible Operator services and assists the Public Works Department as needed. Treated water originating from the storage reservoirs at the LWTP is pumped to the community of Latchford via the Distribution System.

The source water for the treatment process is drawn from a surface water source (Bay Lake) located adjacent to the town site. Potential pathogenic organisms are removed from the raw water by coagulation and flocculation which precedes clarification (adsorption), granular media filtration, primary disinfection, and secondary disinfection processes. This multiple barrier approach helps to ensure consistently safe and clean drinking water.

Intake & Low Lift Pumping

Raw water enters the raw water wet wells by gravity feed. The intake line is a 250 mm diameter pipe, which is approximately 210 m in total length.
There are three low lift pumps located within the water treatment plant. The low lift pumps transfer source water from the raw water wet well to the treatment units within the plant. Operation of the low lift pumps is responsive to liquid level in the treated water storage reservoirs. When the level in the treated water reservoirs reaches its upper set point, the flow of raw water will stop. The required rate of flow is determined by community demand, and controlled by an ultrasonic level sensor located in each of the treated water clear wells.
The raw water pumps are connected to the facility's standby diesel generator (with a rating of 150kw), so as to provide power for the raw water pumps during emergency situations.

Coagulation/Flocculation

A primary coagulant and a pH/alkalinity adjustment chemical are added to the incoming raw water upstream from the flocculation tanks to promote coagulation and enhance floc formation. Rapid mixing of the primary coagulant chemical with the raw water occurs as the raw water passes through an in-line static mixer. Additional mixing is completed hydraulically in the baffled flocculation tanks.

Clarification/Filtration

Most of the particulate matter that was present in the raw water is captured by the particles of floc. The coagulated water enters one two US Filter Trimite adsorption clarifiers, each with a rated capacity of 6.3 L/sec. The majority of incoming particulate matter (floc) adheres to plastic beads

floating within these clarifiers. As the clarifiers remove particulate matter from the incoming water, they begin to plug and are cleaned in an automated flush cycle (complete with auxiliary scour – air).

Clarified water is then directed to granular media filtration which is intended to remove any remaining suspended particles. As the granular media filters remove particulate matter from the incoming water, they too begin to plug and are also cleaned in an automated backwash cycle (complete with auxiliary scour – air).

Primary and Secondary Disinfection

Primary disinfection occurs following filtration, immediately upstream from the treated water storage reservoirs. After the previous treatment processes, primary chlorination disinfects the filtered water, ensuring that any potentially pathogenic organisms that may remain are killed, destroyed, or inactivated prior to distribution to consumers. Disinfection is achieved at the Latchford Water Treatment Plant by adding a disinfectant to the filter effluent. Consistent disinfection is ensured by continuously monitoring the disinfectant residual prior to water entering the storage reservoirs, and again in the treated water leaving the facility (immediately after the intended contact time has been achieved). If the residual drops below a set point, an operator is notified to correct the problem.

Secondary disinfection is accomplished by adding a sufficient amount of disinfectant at the LWTP, so as to maintain a residual throughout the distribution system. Secondary disinfection prevents the growth of biofilm within the distribution system, and serves to protect the water from re-contamination as it flows through the community.

pH Adjustment

A pH adjustment chemical can be used to adjust the pH to a level that will minimize corrosion in the distribution system.

Treated Water Storage Reservoirs & High Lift Pumping

The treated water storage reservoirs contain two large reservoirs cells. The reservoirs are connected to two high lift pumping chambers. The total volume of the entire treated water storage system is approximately 450 m^3 (or 133.6 m^3 per 1.0 metre of water depth). The reservoir system is designed to meet primary disinfection requirements

Three high lift pumps are used to transfer treated water from the reservoirs to the Latchford Distribution System. One of the pumps has a pumping capacity of 3.7 L/s and runs almost

continuously (duty pump), and the other two pumps have a rated capacity of 7.3 L/s and only operate when the duty pump is unable to satisfy the flow demand of the community while maintaining pressure at a preset level. The fourth pump is a high capacity pump and has a pumping capacity of 38 L/s. This pump only operates during periods of unusually high water demand (fire fighting, hydrant flushing, watermain breaks). The high lift pumps are connected with separate suction lines to a common treated water discharge header, complete with a magnetic flow meter. The speed of the high lift pumps are controlled with variable frequency drives while the high capacity pump operates at a fixed speed.

Distribution System

Treated water from the LWTP enters the distribution system through an 85 meter (200 mm diameter) transmission main. The distribution system contains 32 hydrants.

Process Residuals Management

Wastewater from the treatment units (clarifier flush and filter backwash water) is directed to a waste holding tank prior to its removal via two submersible pumps into a 100 mm forcemain leading directly to the sewage treatment system. A level sensor monitors the level in the waste holding tank, which in turn controls pump operation.

Critical Upstream and Downstream Processes

There are no critical upstream or downstream processes.

Source Water Overview

Source Water Description

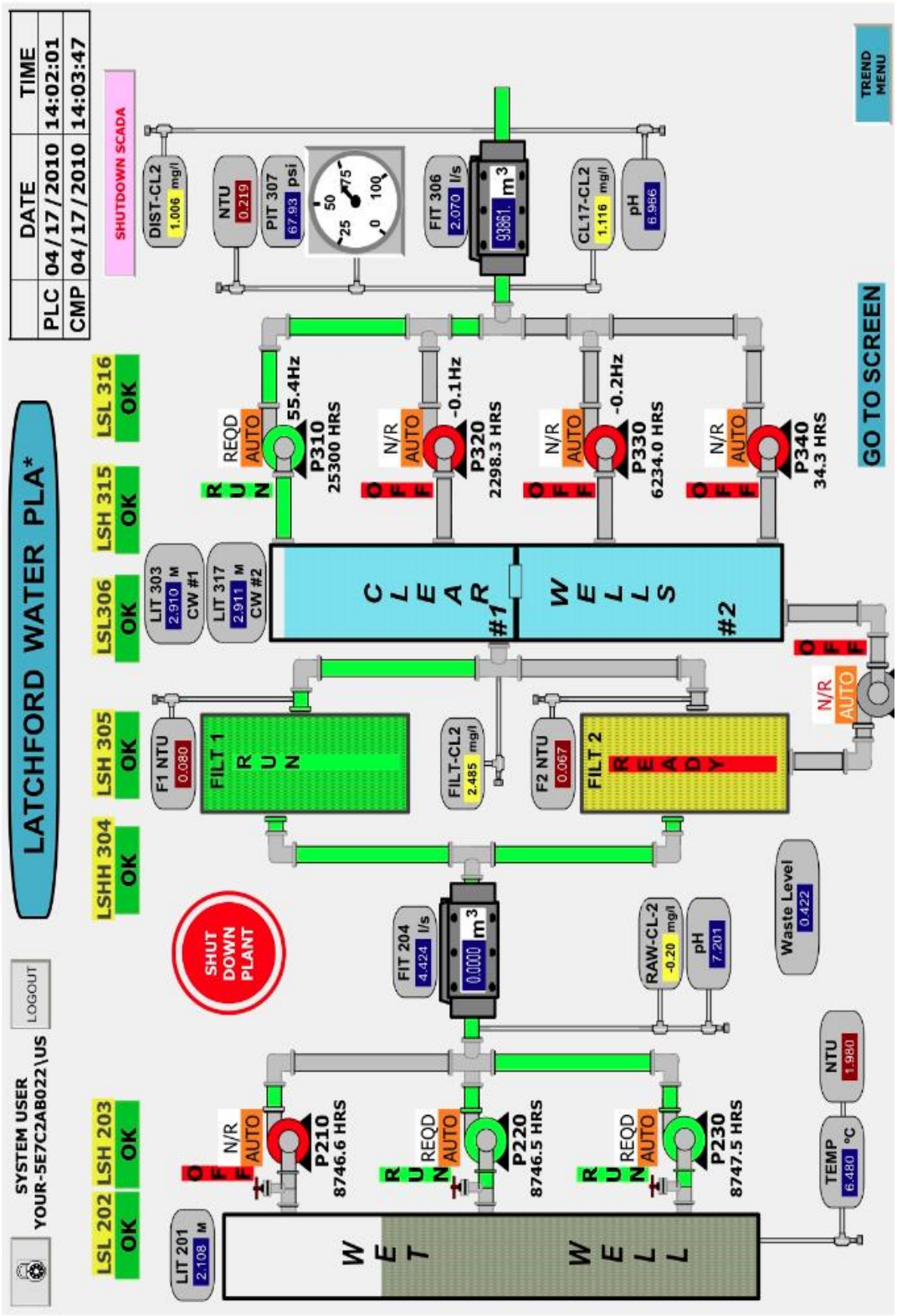
The raw water supply for the Latchford Drinking Water System is characterized as follows:

Parameter	Range	Seasonal Notes
Turbidity	0.50-2.00 NTU	Higher in summer
Colour	15 - 70 TCU	Higher in summer
Temperature	0.5 – 25^{o}C	Higher in summer
Alkalinity	15-30 mg/L as $CaCO_3$	Stable year round
pH	6.5-7.5	Stable year round
Total Coliform	0 - 400 CFU/100 mL	Higher in summer
E-Coli	0-15 CFU/100 mL	Higher in summer

Event-Driven Fluctuations and Operational Challenges

Changes in water temperature may impact treatment process performance (coagulation and disinfection), and may require slight adjustments to treatment chemical dosages in response to these fluctuations.

Historically, there have been some changes in raw water quality due to seasonal changes in temperature. These changes are associated with increased biological activity in the summer months, resulting in higher turbidity, colour, and micro-organism counts. These changes in source water quality pose no real operational challenges for the Latchford Drinking Water System.


LATCHFORD WATER PLA*
SYSTEM USER
YOUR-5E7C2AB022\US
LOGOUT
PLC 04/17/2010 14:02:01
CMP 04/17/2010 14:03:47
DATE
TIME
SHUTDOWN SCADA
TREND MENU
GO TO SCREEN
SHUT DOWN PLANT
LSL 202 OK
LSH 203 OK
LSHH 304 OK
LSH 305 OK
LSL306 OK
LSH 315 OK
LSL 316 OK
LIT 201 2.108 M
LIT 303 2.910 M CW #1
LIT 317 2.911 M CW #2
DIST-CL2 1.006 mg/l
NTU 0.219
PIT 307 67.93 psi
FIT 306 2.070 l/s
93861. m3
CL17-CL2 1.116 mg/l
pH 6.966
FIT 204 4.424 l/s
0.0000 m3
RAW-CL-2 -0.20 mg/l
pH 7.201
Waste Level 0.422
TEMP 6.480 °C
NTU 1.980
F1 NTU 0.080
FILT 1 RUN
FILT-CL2 2.485 mg/l
F2 NTU 0.067
FILT 2 READY
P210 8746.6 HRS
P220 8746.5 HRS
P230 8747.5 HRS
55.4Hz
P310 25300 HRS
-0.1Hz
P320 2298.3 HRS
-0.2Hz
P330 6234.0 HRS
P340 34.3 HRS
WET WELL
CLEAR WELLS #1
CLEAR WELLS #2

7. Risk Assessment

A Risk Assessment was conducted of the Latchford drinking water system. The water was followed from the source to the curb-stop to identify potential and actual hazardous events which may in turn present hazards to the process, the equipment, to the water or any combination thereof.

A Risk Assessment Procedure is located in Appendix A.

8. Risk Assessment Outcomes

The Risk Assessment Spreadsheet shows the identified hazards and hazardous events, ranked risks, control measures, and reference to monitoring and response procedures. The Risk Assessment Spreadsheet is attached as Appendix C.

Critical Control Points identified in the Risk Assessment are:

- Chemical Feed
- Filter Turbidity
- Primary disinfection
- Secondary disinfection
- System Pressure

These Critical Control Points are supported Work Instructions that identify the Critical Control Limits, response requirements for deviations from the Critical Control Point Limits and the reporting and recording of these deviations.

The Critical Control Point Response Procedures are located in Appendix B.

9. Organizational Structure, Roles, Responsibilities and Authorities

The description of the organizational structure shall be kept current and communicated to the Operating Authority Personnel and the Owner by the QMS Representative.

Key water system roles are listed in Table 1 beginning below with associated responsibilities and authorities. This information is communicated as per the Communication Procedure.

ORGANIZATIONAL CHART

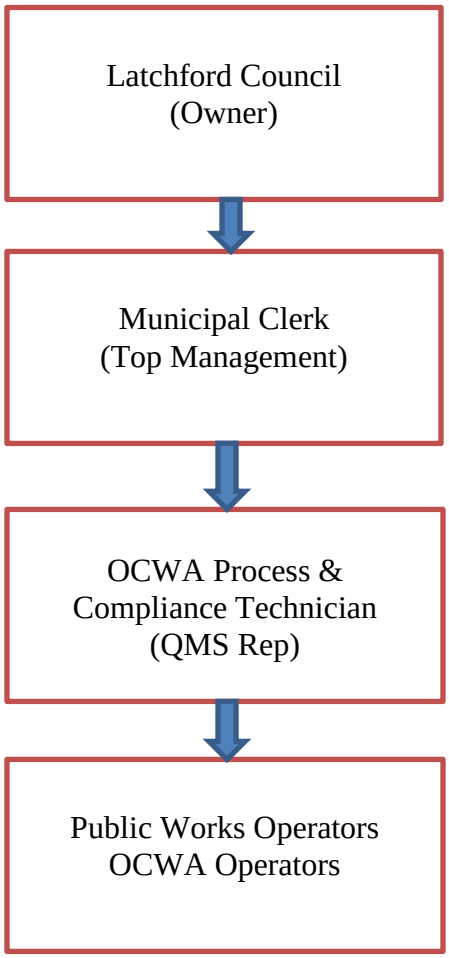


Table 1: Roles, Responsibilities & Authorities

Role	Responsibility	Authority
Clerk (Top Management)	• Ensure QMS is in place • Communicate QMS as per Communication Procedure • Determine, obtain and provide resources required for QMS • Perform Mgmt Review	• Allocation of provided resources • Designate responsibilities as required. • Hire additional Public Works staff • Sign-off expenditures
QMS Rep	• Maintain regulatory compliance • Monitor water quality & demand • Oversees water operator and contractors • Implement and maintain the QMS • Report on the performance of the QMS to Top Management • Identify needs for improvement in the QMS • Ensure that the current versions of documents required by the QMS are in use at all times • Ensure that all personnel are aware of all applicable legislative requirements that are relevant to the operation of the works • Stay up to date on changes to relevant legislative and regulatory requirements • Promote the QMS throughout the Operating Authority	• Delegate duties as necessary • Oversees daily functions of Public Works staff • Ensures training of staff meets requirements • Recommend ways to improve operational effectiveness • Maintain license certification • Recommend changes and improvements to the QMS • Change QMS Documentation as required
ORO	• Monitor water quality & demand • Oversees daily operation/maintenance of the water distribution system. • Oversees water operator and contractors • Stay up to date on changes to relevant legislative and regulatory requirements	• Assigns tasks to Operators • Recommend ways to improve operational effectiveness • Maintain license certification
Public Works Operator	• Performs daily maintenance on water treatment and distribution systems as directed by the ORO • Stay up to date on changes to relevant legislative and regulatory requirements • Monitor water quality & demand	• Performs tasks set out by Foreman • Recommend ways to improve operational effectiveness • Maintain license certification

10. Competencies

The Desired Competencies for the Town of Latchford personnel who perform duties that directly affect drinking water quality are identified in the table below.

Table 1: Competencies

Role	Desired Competency
Municipal Clerk (Top Management)	• Minimum 10 years' experience • Emergency Management Training
QMS Rep	• 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 • Plan training activities to ensure the desired competencies are achieved and maintained
ORO	• Class 3 Water Distribution Certification • Class 3 Water Treatment Certification • Valid Driver's License • WHMIS, First Aid/CPR, Confined Space Training • 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
Public Works Operator	• Class 2 Water Treatment Certification • WHMIS • Valid Driver's License • Good knowledge of water treatment processes to operate the facility • Knowledge of legislation, regulations, codes, policies, guidelines and procedures related to operations and maintenance • Knowledge and awareness of the DWQMS

11. Personnel Coverage

The requirement for Personnel Coverage is addressed in the procedure located in Appendix A. The Public Works Department's normal hours of operation are Monday to Friday 7:30am to 4:00pm. Coverage shall be provided through a combination of on-site and on-call staffing supplemented by SCADA based alarms and notification.

12. Communications

The Communications Procedure describes the process for ensuring that relevant aspects of the QMS are communicated between Too Management and the Owner, public works personnel, suppliers and the public. The procedure is located in Appendix A.

13. Essential Supplies and Services

Per the requirements of the DWQMS this Operational Plan contains a list of all supplies and services deemed essential for the treatment and delivery of safe drinking water. The List of Essential Supplies and Services is in Table format and is located in Appendix C (QMSD-12). The Table also lists the means to ensure procurement.

The requirements for ensuring the quality of essential supplies and services has also been developed and implemented. The Quality Assurance Procedure is attached in Appendix A.

14. Review and Provision of Infrastructure

A procedure for the Review and Provision of Infrastructure has been developed and implemented. The procedure describes the steps taken by the Operating Authority to assess the condition and effectiveness of drinking water system for The Town of Latchford, on an annual basis.

Results of the review are included as input to the development of Maintenance, Rehabilitation and Renewal programs and as such are reported to the Owner for resource planning purposes, typically during the fall of each calendar year. From time-to-time, the Clerk and/or the Water wastewater ORO may report upon the status of the infrastructure during Committee of the Whole and Council meetings, when requested.

The Infrastructure Review procedure is included in Appendix A.

15. Infrastructure Maintenance, Rehabilitation and Renewal

Infrastructure Rehabilitation and Renewal

It is from the Infrastructure review that Top Management, in conjunction with input from the Owner, shall establish priorities for the rehabilitation and renewal, as appropriate, of the drinking water infrastructure. The process for managing infrastructure rehabilitation and renewal is documented in the Infrastructure Review Procedure.

Infrastructure Maintenance/Planned and Unplanned

The Public Works department shall conduct planned and unplanned maintenance on the drinking water systems under its control. Planned maintenance of treatment equipment, instruments and appurtenances is as per the manufacturer's recommendations and the practical judgment of the operators.

Planned maintenance of the Distribution Systems includes Valve Exercising, Hydrant and Main Flushing.

Unplanned maintenance results from equipment malfunction or breakage. The Water Wastewater ORO shall respond during working hours On-call operator shall respond during off hours. All unplanned maintenance shall be documented in the logbook.

The effectiveness of the maintenance program shall be reviewed and discussed during the Management Review Process. A summary of the Management Review shall be provided to the Owner.

16. Sampling, Testing and Monitoring

Sampling

A Sampling Procedure has been developed for the drinking water system and is attached in Appendix A. The procedure contains a description of what sampling is done, by whom.

The procedure addresses the conditions most challenging to the subject works, and how the sampling results (frequency) are recorded and shared between the Operating Authority and the Owner (See also Communications Procedure – Appendix A.)

Testing

A Testing Procedure has been developed for the drinking water systems and is attached in Appendix A. The procedure contains a description of what testing is done "in-house" for purposes of maintaining process control and what testing is conducted by accredited laboratories in compliance with Legislation and Regulations.

The procedure addresses the conditions most challenging to the system, and how the testing results are recorded and shared between the Operating Authority and the Owner (See also Communications Procedure – Appendix A.)

It is understood by Operating Authority personnel that any adjustments made to the process as a result of the use of measuring and recording equipment must be supported by records of calibration of that measuring and recording equipment.

Monitoring

A Monitoring Procedure has been developed for the drinking water system within and is located in Appendix A.

Monitoring is conducted through the application of SCADA technology and operator facility rounds.

A Calibration Procedure has been developed and implemented that conforms to the requirements of the DWQMS and is attached in Appendix A. The procedure identifies measurement and recording equipment that is calibrated on-site by competent Ontario Clean Water Agency personnel.

18. Emergency Management

An emergency is considered to be a potential situation or service interruption that may result in the loss of the ability to maintain a supply of safe drinking water to consumers. The Town of Latchford has identified the following as Potential Emergency Situations:

- Severe Weather
- Major Fire
- Vandalism
- Pandemic
- Labour Disruption

The Emergency Management procedure has been developed and implemented and is located in Appendix A. The procedure describes the process of maintaining a state of emergency preparedness, including requirements for Emergency Response Training, Testing, Owner and Operating Authority Responsibilities. It also refers to applicable emergency response procedures.

19. Internal Audit

Internal Audits

The Operating Authority has developed and implemented a robust Internal Audit Procedure in conformance to the requirements of the DWQMS. The procedure does not address the requirement for Corrective Action, but rather references a "stand-alone" Corrective Action Procedure. The Internal Audit Procedure is attached in Appendix A. The Internal Audit Checklist is attached in Appendix C.

Corrective Action

To support the Audit Procedure the Town of Latchford has also developed and implemented a Corrective Procedure that shifts the focus from "corrections" as required by Legislation and Regulations to identification and elimination of the root cause of QMS non-conformances. The Corrective Action Procedure is attached in Appendix A, and the associated Corrective Action Request (CAR) is located in Appendix C.

20. Management Review

A Management Review Procedure has been developed and implemented and is attached in Appendix A. The Management Review process described within the body of the procedure covers all key metrics of the QMS such that its suitability, adequacy and effectiveness can be objectively reviewed. The procedure describes the steps for gathering, summarizing and reviewing QMS performance data and information by the Operating Authority. It also addresses the roles and responsibilities of personnel assigned the any action items resulting from the review, and the reporting of the results of the review to the Owner of the drinking water systems.

21. Continual Improvement

The Town of Latchford, as the Operating Authority has recognized the Quality Management System as a priority and is committed to implementing any changes deemed necessary through annual audits and reviews, owner and employee suggestions/recommendations and consumer input in order to continually make improvements to our drinking water system.

Document History

Revision	Date	Description	By
	3/Dec/13	Initial Release	P. Laurin
1	4/Oct/16	Added OCWA as ORO in intro. Changed QMS rep from ORO to OCWA PCT. Updated Organizational chart to add OCWA PCT and operators. Updated Roles and Competencies tables to reflect change in responsibilities from ORO to PCT and operators (added operators to tables). Changed responsibility of calibrations from operating Authority to OCWA.	Rebecca Marshall

APPENDIX A

QMSP-1 Document Control Procedure
QMSP-2 Record Control Procedure
QMSP-3 Risk Assessment Procedure
QMSP-4 Personnel Coverage Procedure
QMSP-5 Communications Procedure
QMSP-6 Quality Assurance Procedure
QMSP-7 Infrastructure Review Procedure
QMSP-8 Sampling Procedure
QMSP-9 Testing procedure
QMSP-10 Monitoring Procedure
QMSP-11 Calibration Procedure
QMSP-12 Emergency Management Procedure
QMSP-13 Internal Audit Procedure
QMSP-15 Management Review Procedure

APPENDIX B

CCPR-1 CCP Response Work Instruction – Primary Disinfection
CCPR-2 CCP Response Work Instruction – Secondary Disinfection
CCPR-3 CCP Response Work Instruction – Chemical Feed
CCPR-4 CCP Response Work Instruction – Filter Turbidity
CCPR-5 CCP Response Work Instruction – System Pressure
ERP-1 Emergency Response Work Instruction – Treatment Plant Fire
ERP-2 Emergency Response Work Instruction – Pandemic
ERP-3 Emergency Response Work Instruction - Vandalism
ERP-4 Emergency Response Work Instruction - Weather

APPENDIX C

Master List of Documents
Work Instruction Template
Risk Assessment Outcomes
Internal Audit Checklist
Emergency Contacts
Essential Suppliers & Services List
Management Review Checklist
Infrastructure Review Checklist

1 Purpose

The purpose of this procedure is to define the method for the Control of QMS Documents.

2 Scope

This procedure is applicable to all Operating Authority Personnel.

3 References

DWQMS Element 5 Document and Records Control

4 Definitions and Acronyms

Record – a document that states results achieved or provides proof of activities that have been completed

Document – a set of instructions or a blank form that once filled in becomes a record

5 Procedure

Creating New or Updating Existing Documents

5.1 The Master List of Documents identifies the documents that are currently controlled under the QMS.

5.2 Any employee of the Town of Latchford or the Ontario Clean Water Agency may request the creation of a new QMS document or a change to an existing one. The need for new or updated documents may also be identified by audits or management reviews.

5.3 The QMS Representative shall be responsible for reviewing, changing and approving the requests.

5.4 The QMS Representative shall be responsible for ensuring documents are kept current through the implementation of this procedure.

5.5 New documents shall be created using the standard templates. Revisions made to existing documents shall be recorded in the Change History section.

Retention of Obsolete Documents

5.6 Obsolete documents shall be collected by the QMS Representative when revised documents are issued, or when changes to the processes documented in the QMS occur.

5.7 Obsolete documents may be retained for knowledge or other purposes. Those being retained shall be clearly marked as "Obsolete" placed in the "Obsolete Documents Folder" that is maintained by the QMS Representative. Access to this folder shall be restricted to the QMS Representative and/or his/her designate, as appropriate.

5.8 Obsolete documents not being retained shall be destroyed by the QMS Representative.

Document Availability

5.9 An electronic copy shall be stored on the Ontario Clean Water Agency Network.

5.10 All procedures, instructions, forms and checklists shall be retained in the QMS folders or designated folders on the water treatment plant computer, with restricted write access as appropriate.

5.10.1 Hard copies, are to be retained in clearly marked QMS binders in the Treatment Plant and the Municipal Office.

5.11 Equipment manuals are retained at the treatment plant, as appropriate. They are stored by equipment type.

6 Associated Documents & Records

QMD-1	Latchford Operational Plan
QMD-2	Master List of Documents
QMD-4	Procedure Template
QMD-5	Work Instruction Template

7 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin
2	4/Oct/16	QMS rep responsible for approving changes not municipal clerk. Electronic copies of documents are kept on the OCWA network not on the WTP computer.	R. Marshall, OCWA PCT

1 Purpose

The purpose of this procedure is to define the method for Control of Records that are required by the Latchford DWS Quality Management System.

2 Scope

This procedure is applicable to all records that are generated from processes and activities that are described within the Operational Plan and/or its referenced documents, demonstrating conformance to the QMS requirements.

3 References

DWQMS Element 5 Document and Records Control

4 Definitions and Acronyms

Record – a document that states results achieved or provides proof of activities that have been completed.

5 Procedure

5.1 Records are maintained as objective evidence that the requirements of the DWQMS are being effectively addressed.

5.2 The QMS Representative shall be responsible for control of records, related to the supply of safe drinking water.

5.3 Records may be retained in hard copy or in electronic copy.

General Requirements

5.4 All records shall have a title, which shall be clearly visible and legible.

5.5 Manual records shall be legible. Pencil or any other erasable marker shall not be used to record process or product information or data.

5.6 All manual records shall show the name or initials of the recorder and the date (and time if appropriate) the record was generated.

5.7 QMS records shall be stored and available at the Town office or the Treatment Plant, as appropriate.

5.8 QMS records shall be stored in a manner that protects them from damage or deterioration, and in such a manner as to make them easily retrievable.

5.9 Records shall be retained in either hard or soft copy per the retention times indicated in the Records Retention section listed below.

5.10 All records shall be readily retrievable for the purposes of the external auditors, municipal employees and inspectors.

5.11 The SCADA data shall be downloaded to the water treatment Computer and a hard copy shall be printed out.

Records Retention

5.12 Records that have exceeded the minimum retention times, and are not required to be retained for knowledge, legal or other purposes, shall be archived or disposed of.

5.12.1 Means of disposal may include recycling, shredding and recycling, incineration or placement in containers to be sent to landfill.

5.13 All records required to demonstrate conformance to the requirements of the DWQMS shall be retained for the following minimum time periods:

10 Years

- DWQMS Operational Plan

5 Years

- DWQMS Corrective Action Requests
- Internal QMS Audit Results
- External QMS Audit Results
- Management Review Minutes

- Calibration Results
- Consumer Enquiries (Relating to Drinking Water Quality), as applicable
- Maintenance/Service Requests
- Emergency Plan Summaries
- QMS Competencies Records

6 Associated Documents & Records

QMD-1 Latchford Operational Plan
QMD-2 Master List of Documents

7 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin
2	04/Oct/16	Added 10 years for Operational Plan retention	R. Marshall

1 Purpose

The procedure describes the process for identifying potential hazardous events and their associated hazards to the Latchford treatment and distribution system.

2 Scope

This procedure is applicable to all production and delivery processes for the supply of safe drinking water.

3 References

DWQMS Elements 7 & 8 Risk Assessment

4 Definitions and Acronyms

CCL – Critical Control Limit
CCP – Critical Control Point

5 Procedure

Hazardous Event and Hazard Identification

5.1 The Foreman/ORO shall create a Risk Assessment Spreadsheet for the results of the initial risk assessment activity to be recorded.

5.1.1 The Risk Assessment Spreadsheet shall allow for the recording of:

- Process Area
- Process Step
- Hazardous Event
- Potential Hazard(s)
- Likelihood, Severity and Detectability
- RPN (Risk Priority Number)
- CCP Status (Yes/No)
- Control Method

5.2 By following the process flow, all potential hazardous events and hazards to the to the drinking water system will be identified.

5.2.1 At a minimum, the process areas to be considered are:

- Raw Water Source and Intake
- High Lift

- Chemical Feed
- Filtration
- Disinfection, and
- Distribution

5.3 At a minimum, the items listed in 5.1.1 shall be recorded in the Risk Assessment Spreadsheet.

Ranking Risk

5.4 Each hazard identified shall be "ranked" by the team according to:

- **Likelihood** is the probability/likelihood of a hazard or hazardous event occurring (see below)
- **Severity** is the potential impact to health or impact on operations if the hazard or hazardous event occurs (see below)
- **Detectability** is a measure of the ability to detect the presence of the hazard or hazardous event (see below)

Criterion 1 – Likelihood

Level	Descriptor	Example Description
5	Almost Certain	Expected to occur in most circumstances
4	Likely	Probably occur in most circumstances
3	Possible	Will occur at some time
2	Unlikely	May occur at some time
1	Rare	May occur only in exceptional circumstances

Criterion 2 – Severity

Level	Descriptor	Example Description
5	Catastrophic	Major impact for population, system failure
4	Major	Major impact for population, system compromised, abnormal operations, high level of monitoring
3	Moderate	Minor impact for population, modification to normal; operation, increased monitoring
2	Minor	Minor impact for population, manageable disruption
1	Insignificant	No impact, minor disruption

Criterion 3 – Detecability

Level	Descriptor	Example Description
5	Undetectable	Cannot detect (i.e Chemicals not on Schedules)
4	Poor Detectability	Problem is evident
3	Detectable	Visually detectable, rounds or maintenance
2	Moderate Detectability	Performance indicators, testing
1	High Detectability	Alarmed, fully visual

5.5 The reliability and redundancy of equipment shall be considered in this ranking.

5.6 The control measures, monitoring and response procedures shall be identified and considered when assigning ratings to hazard and hazardous events.

5.7 The total risk shall be determined by adding the individual scores for likelihood, severity, and detectability.

Critical Control Points

5.8 All hazards or hazardous events which have an overall risk rating of greater than 12 shall be identified as Critical Control Points.

5.8.1 The following shall also be identified as Critical Control Points (in support of the Multiple Barrier approach to drinking water safety) regardless of ranking:

- Chemical feed
- Primary and Secondary Disinfection
- Post-Filtration Turbidity

5.9 A CCP Response Work Instruction shall be implemented and maintained for each identified critical control point.

General

5.10 The QMS Representative shall ensure that a review is conducted of the Risk Assessment Spreadsheet to ensure that the information and assumptions are current and valid.

5.10.1 The Risk Assessment review shall be conducted prior to the QMS Management Review.

5.10.1 A Risk Assessment shall also be conducted whenever there is a significant process change or upgrade to the drinking water system infrastructure.

5.11 Every 3 years, the QMS Representative shall ensure a new risk assessment is conducted.

6 Associated Documents

QMD-1 Latchford Operational Plan
QMD-2 Master List of Documents
QMD-6 Risk Assessment Master

7 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin
2	04/Oct/16	Reviewed	R.Marshall

1 Purpose

The purpose of this procedure is to define operational coverage for the Latchford drinking water system.

2 Scope

This procedure is applicable to all drinking water activities for which the Town of Latchford is responsible as the Operating Authority.

3 References

DWQMS Element 11 Personnel Coverage

4 Definitions and Acronyms

ORO – Overall Responsible operator

5 Procedure

5.1 Normal Hours of Operation for the Town of Latchford Public works staff shall be Monday to Friday 7:30 am – 4:00 pm.

5.1.1 Normal hours include on-site rounds, inspections, testing and sampling.

5.2 An Operator shall be called for all after-hours alarms and service requests.

5.3 The Ontario Clean Water Agency shall designate a licensed Class II Water Operator to act as ORO.

Emergencies

5.4 For Emergencies that occur during normal operating hours staff may be contacted through the Town of Latchford municipal office.

5.5 All alarms developed in the water system shall be automatically sent to a dialer. The dialer calls out the alarm through a list programed by operations staff (directed by ORO). The Operators then responds to the emergency.

5.6 In the event of an emergency, such as a pandemic, the Ontario Clean Water Agency can provide assistance.

5.7 If the on-call operator needs assistance, they may contact contractors or other municipal staff.

5.7.1 The contractor contact information shall be located on the Essential Services and Supplies List.

6 Associated Documents & Records

QMD-1 Latchford Operational Plan

7 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin
2	04/Oct/16	Changed Municipality to OCWA as the one to designate an ORO. Added that OCWA can assist in an emergency.	R. Marshall

1 Purpose

This procedure describes how relevant aspects of the Quality Management System are communicated the owner, operating authority personnel, suppliers and the public.

2 Scope

This procedure is applicable to Top Management of the Town of Latchford Operating Authority and the QMS Representative.

3 References

DWQMS Element 12 Communications

4 Definitions and Acronyms

None

5 Procedure

The Owner

5.1 The Municipal Clerk or his designate shall communicate relevant aspects of the Quality Management System, as provided by the QMS Representative, to the Drinking Water System Owners during Committee and/or Council meetings.

5.1.1 The QMS Representative may be called upon to provide additional QMS information.

5.1.2 A summary of the QMS Management Review shall be communicated to the owners during Committee and/or Council meetings.

5.2 Communication between the Municipal Clerk and the Owner shall be recorded in the Committee and/or Council meeting minutes.

Operating Authority Personnel

5.3 The QMS Representative shall communicate the importance of compliance with applicable legislation and regulations as well as relevant aspects of the QMS to Public Works staff directly, or through the ORO.

5.3.1 Relevant aspects may include but are not limited to:

- those activities as documented in the Operational Plan that are necessary to ensure a supply of safe drinking water.
- additions or revisions to QMS documentation
- process changes
- legislative and regulatory requirements

5.4 Public Works staff may communicate any questions or concerns to Top Management directly or through the QMS Representative.

Suppliers

5.5 The QMS Representative will communicate the relevant aspects of the Quality Management System to suppliers. Relevant aspects include the requirements for quality and supply of essential products and services.

5.6 Other aspects of the QMS may be communicated to suppliers via other municipal employees as directed by the Municipal Clerk.

The Public

5.7 Top Management shall ensure that the Quality Management System, as documented in the Operational Plans is be available for public viewing in the Public Information Binder at the appropriate Municipal Office.

6 Associated Documents & Records

QMD-1 Latchford Operational Plan

7 History of Changes

Revision	Date	Description	By
1	15/Dec/09	Initial Release	V. Legault
2	04/Oct/16	Added OCWA to the scope. QMS rep is responsible for providing QMS information to Public works, and	R. Marshall

		suppliers not top management. Public works can speak directly to top management or QMS rep.	

1 Purpose

The purpose of this procedure is to describe the activities for ensuring the quality of essential supplies and services that may affect drinking water quality.

2 Scope

This Procedure is applicable to all Town of Latchford personnel who purchase and/or receive supplies and services that may directly affect drinking water quality.

3 References

DWQMS Element 13b Essential Supplies and Services

4 Definitions and Acronyms

Essential - can directly affect the delivery of safe drinking water if not in place when required

5 Procedure

General

5.1 All products and services that may directly affect drinking water quality shall be subject to one or more of the following in order to assure quality before use:

- NSF, ANSI, ASME, NAS or other Standard
- AWWA(OWWA) Recommendation
- Previous acceptance and use by the Ontario Clean Water Agency
- Use by other Municipal Waterworks (Evidence such as references must be provided)
- Incoming inspection
- Certification of the service provider when specified by regulation (i.e., Laboratory and Calibration Services)
- A review and approval of the product specifications or service provider capabilities by the Operator/ORO

5.1.1 Product that does not require certification shall meet the requirements of form, fit and function as determined by the end user. See 5.3.

5.2 Quality requirements shall be specified at the time of order or purchase.

Product

5.3 All product received shall be inspected prior to use. The inspection process may be visual.

5.3.1 Product shall be inspected for conformance to order requirements, including quantity, prior to use. The visual inspection shall ensure that product is in useable condition.

5.3.2 Manifests, certificates of analysis, packing slips and other documentation accompanying the product shall be reviewed for conformance to order requirements prior to acceptance.

5.3.3 Non-conforming product shall be clearly identified and segregated to avoid unintended use.

Services

5.4 Certifications of organisations that provide laboratory and calibration services shall be required and maintained on file by the Operator/ORO.

6 Associated Documents & Records

QMD-1 Latchford Operational Plan
QMD-12 Essential Supplies and Service List

7 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	V. Legault
2	05/Oct/16	Changed previous use and acceptance by the Town of Cobalt changed to OCWA	R.Marshall

1 Purpose

The purpose of this procedure is to define the method for reviewing the adequacy of the infrastructure necessary to operate and maintain the Coleman Township drinking water distribution system.

2 Scope

This procedure is applicable to Top Management, the QMS Representative, the ORO and operators of the Latchford drinking water system.

3 References

DWQMS Element 14 Review and Provision of Infrastructure

4 Definitions and Acronyms

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 and software, and supporting services such as transport or communication

5 Procedure

5.1 The QMS Representative shall, on an annual frequency, schedule a meeting to review the condition of the infrastructure and make repair/replace recommendations for each drinking water system. Attendees shall include, at a minimum:

- QMS Representative
- Municipal Clerk
- ORO and Operators

5.1.1 All attendees shall be given 5 days notice of the meeting.

5.1.2 The meeting may be conducted over several days so as not to impact the day-to-day operations of the drinking water system.

5.2 The review shall forecast and make infrastructure repair/replace recommendations based upon:

- Past maintenance
- Planned maintenance on roads and sewer systems
- MOE Compliance Inspection Reports
- Water works staff suggestions,
- Water quality trends
- Consumer complaints
- Planned growth

5.3 The ORO, Operators and the QMS Representative shall make drinking water infrastructure renewal, rehabilitation and planned maintenance recommendations as required, and the Municipal Clerk will provide those recommendations to the Owner, in writing.

Infrastructure Renewal and Rehabilitation

5.4 Based upon the outcome of Owner deliberations, the Municipal Clerk and the ORO shall create and maintain a rolling list of priorities for infrastructure renewal and rehabilitation of the drinking water system.

5.5 The Municipal Clerk and the ORO shall review the status of all maintenance, renewal and rehabilitation programs for each drinking water system at least annually to ensure that program objectives are being met. Typically this is done during the Management Review of the QMS.

5.6 Results of program reviews shall be reported to the system owner.

6 Associated Documents & Records

QMD-1 Latchford Operational Plan

7 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin
2	04/Oct/16	Added ORO, operators and QMS rep to scope. Added ORO and operators as persons who could suggest/recommend chages to the infrastructure of the WTP. Removed Operator from section 5.4 and 5.5.	R. Marshall

1 Purpose

The purpose of this procedure is to define the sampling process for the Town of Latchford Drinking Water System

2 Scope

This procedure is applicable to the Town of Latchford drinking water system operators and ORO operators.

3 References

DWQMS Element 16 - Sampling, Testing and Monitoring

4 Definitions and Acronyms

None

5 Procedure

5.1 All Sampling shall be performed by a licensed operator.

5.2 At a minimum, sampling shall be performed in compliance with all applicable legislation and regulations.

5.3 Operators shall follow the sample collection protocol as documented in "Practices for the Safe Collection and Handling of Drinking-Water Samples".

Sampling for upstream activities

5.4 A licensed Operator shall obtain samples from the raw water source for testing on a weekly basis.

5.5 Continuous sampling of turbidity, pH and flow shall occur for the raw water within the SCADA system. No samples shall be retained.

Sampling in Water Treatment

5.6 In the WTP continuous sampling of chlorine residual, turbidity, pH, flow shall occur for the treated water within the SCADA system. No samples shall be retained.

5.7 The sampling data shall be retained in the electronic SCADA file and shall be printed out on a daily basis.

5.8 In addition to continuous sampling a licensed operator shall take grab samples of treated water for testing, as necessary.

Sampling in Water Distribution

5.9 A licensed operator shall take chlorine residual samples at specified locations within the distribution system, four samples are taken on Monday and 3 additional samples are taken at least 48 hours later.

5.10 The locations for sampling are identified on the list in the Latchford WTP office on peg board above the SCADA computer for the water distribution system.

5.10.1 On an annual basis the list shall be updated based upon a review of the current population, legislative requirements and the number of samples being taken.

5.11 Samples shall be taken by a licensed operator for new construction of water mains prior to connection.

5.12 Samples shall be taken by a licensed operator after a water main break to ensure that the water main has been disinfected and the appropriate chlorine residual is achieved.

Sampling during challenging conditions

5.13 In the spring and fall seasons the water source turns over due to alkalinity. Slight changes may be noticed in turbidity. However, no additional sampling is required due to this condition.

Communication with the Owner

5.14 A summary of the sampling information shall be shared with the owner through the Annual Report.

6 Associated Documents & Records

QMD-1 Latchford Operational Plan
Latchford WTP Sampling Schedule

7 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin
2	04/Oct/16	Added ORO to scope and Sampling Schedule to associated documentation	R. Marshall

1 Purpose

This procedure defines testing for the Town of Latchford Drinking Water System.

2 Scope

This procedure is applicable to the Town of Latchford drinking water system Operators and ORO operators.

3 References

DWQMS Element 16 - Sampling, Testing and Monitoring

4 Definitions and Acronyms

Testing – the analysis of a collected sample to assist in the determination of water quality.

5 Procedure

Internal Testing

5.1 Internal testing shall be performed by a certified Operator.

5.2 Internal testing shall be conducted to verify analyzers, monitor water quality, assist with process control and ensure compliance with applicable regulations.

5.3 The Operator shall perform all testing in accordance with standard practices and the equipment manufacturer's instructions.

5.4 The Operator shall record internal testing results on the WTP Log Sheet.

5.5 Internal testing shall be performed within the Water Treatment Plant and Water Distribution System.

External Testing

5.6 All testing that is performed externally shall be performed at an MOECC licensed water laboratory.

5.7 External testing shall be performed to meet regulatory requirements.

5.8 The Operator/ORO shall review the external test results for all systems. New water mains shall be put into service when acceptable test results are received.

5.9 The Operator/ORO shall complete the Chain of Custody Form and file a copy in the filling cabinet in the W.T.P.

5.10 If adverse test results are obtained, the external laboratory will contact the ORO as per applicable legislation. The Public Operator/ORO shall respond as per the legislated requirements.

Testing during challenging conditions

5.11 In the spring and fall seasons there is a risk of higher turbidity. When changes are noticed in turbidity, additional testing may be conducted to confirm the effectiveness of the treatment processes.

Communication with the Owner

5.12 Test results shall be shared with the owner through the Annual Report.

6 Associated Documents & Records

QMD-1 Latchford Operational Plan

7 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin
2	04/Oct/16	Added ORO operators to scope. Lab will contact ORO not operators if there is an adverse.	Rmarshall

1 Purpose

This procedure defines the monitoring processes for the Town of Latchford Drinking water System.

2 Scope

This procedure is applicable to the Town of Latchford drinking water system ORO and operators.

3 References

DWQMS Element 16 - Sampling, Testing and Monitoring

4 Definitions and Acronyms

Monitoring – any checks or systems employed to detect hazards or the potential for hazards. For the purpose of this procedure, monitoring includes continuous SCADA trending and alarmed response.

5 Procedure

5.1 On-line analyzers at the water treatment plant continually monitor the quality of the water. The analyzers are connected to an alarm system which shall notify operators in the event of problems.

5.2 Chlorine residual, turbidity, pH, flow, filter shut downs, power failures, equipment failures, and pressure are monitored at the WTP.

5.3 The electronic SCADA file shall be printed out on a daily basis. The Operator shall review the previous day's file looking for abnormal readings.

5.4 The ORO/Operator shall investigate any abnormal readings and make adjustments to the system as required.

5.5 The ORO/Operators shall review the external test results looking for trends that may indicate a potential change to the water quality.

5.6 The ORO and Operators shall monitor overall quality of the water treatment and distribution systems. Overall water quality results shall

be reported to top management and the owner through the Annual Report.

5.7 The effectiveness of the Quality Management System shall be monitored through the Management Review Process as identified in the Management Review Procedure.

6 Associated Documents & Records

QMD-1 Latchford Operational Plan

7 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin
2	04/Oct/16	Added ORO to sections 5.4, 5.5 and 5.6	R. Marshall

1 Purpose

This procedure defines the process for the calibration and maintenance of measurement and recording equipment.

2 Scope

This procedure is applicable to the Town of Latchford licensed drinking water system ORO and operators.

3 References

DWQMS Element 17- Measurement and Recording Equipment Calibration and Maintenance

4 Definitions and Acronyms

None

5 Procedure

5.1 Calibration of the Chlorine residual analyzer, Turbidity analyzer, flow meter, and pH meter shall be performed by the Ontario Clean Water Agency.

5.2 Maintenance of the Chlorine residual analyzer, Turbidity analyzer, flow meter, and pH meter shall be performed by the ORO or Operators.

5.3 The instruments shall be calibrated and maintained according to manufacturer's specifications, using the manufacturer's manual. Manuals shall be kept with the equipment or where the equipment is stored when not in use.

5.4 Equipment that cannot be properly calibrated by the Ontario Clean Water Agency shall be sent back to the manufacturer or qualified contractor for servicing.

5.5 Calibration and Maintenance records shall be kept at the Latchford WTP or at the Ontario Clean Water Agency Office.

5.6 Public Works staff shall ensure that equipment is verified and if necessary calibrated before use.

5.7 Any calibration certificates that come from the manufacturer or qualified service contractor shall be retained with the calibration records.

5.8 The frequency of calibration shall be that recommended by the manufacturer, at a minimum.

5.9 PH meters shall be calibrated prior to use

5.10 If monitoring equipment is dropped or damaged, the equipment shall be repaired and calibrated prior to being put back into service.

6 Associated Documents & Records

QMD-1 Latchford Operational Plan

7 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P.Laurin
2	04/Oct/16	Changed responsibility of calibrations from operator to OCWA. Maintenance done by Operators or ORO	R. Marshall

1 Purpose

This procedure identifies potential emergencies that can occur within the Latchford Drinking Water System, including the steps for response and recovery and the testing and training requirements for emergency management.

2 Scope

This procedure is applicable to the Town of Latchford or ORO employees engaged in the operation of the drinking water treatment and distribution systems.

3 References

DWQMS Element 18 - Emergency Management

4 Definitions and Acronyms

None

5 Procedure

Identifying Potential Emergencies

5.1. The Risk Assessment Table shall be used for identifying potential emergency situations that may arise. The Risk Assessment is reviewed annually (as per the Risk Assessment Procedure QMSP-3); if any additional emergencies are identified they shall be added to the list shown in Table 1 by the QMS Representative.

Table 1

POTENTIAL EMERGENCIES	
Description of Emergency	**Response Work Instruction**
Fire	ERP-1, Treatment Plant Fire
Pandemic	ERP-2, Pandemic
Vandalism	ERP-3, Vandalism
Weather Related	ERP-4, Weather Related Emergencies

5.2. Other sources of information for identifying potential emergencies include:

- Corporate Audits
- Insurance company reviews
- Records of past emergencies
- New reports about emergencies in other systems
- Ministry of Environment Inspections

Emergency Response and Recovery

5.3. First response to an emergency in the Drinking Water System is provided by the ORO and Public Works staff.

5.4. Communications with the public is directed through the Municipal Clerk of the Town of Latchford.

5.5. The Municipal Clerk will inform the mayor and council at the appropriate time depending on the scope and magnitude of the emergency.

5.6. Emergency Response Work Instructions shall be in place for each identified potential emergency (See Table 1 above).

Emergency Contacts

5.7. The Emergency Contacts list shall be maintained by the QMS Representative at the water treatment plant.

Emergency Response Training

5.8. All Public Works staff shall receive training in emergency response.

5.8.1 Training may be provided by in-house staff or by qualified contractors/trainers.

Emergency Response Testing

5.9. A desktop exercise shall be performed at a frequency of no less than once per calendar year for a minimum of one (1) of the identified emergencies.

5.10. Different testing methods may be used, depending on the complexity of the emergency, the ease of simulation and the likelihood of occurrence.

Distribution of Procedures

5.11. Hard copies of emergency procedures are kept at the water treatment plant and the municipal office.

6 Associated Documents & Records

QMD-1 Latchford Operational Plan

7 History of Changes

Revision	Date	Description	By
1	3/Dec/13	Initial Release	P.Laurin
2	04/Oct/16	Added ORO to scope and procedure.	R. Marshall

1 Purpose

This procedure describes the Internal Audit process.

2 Scope

This procedure is applicable to all Internal Auditors for the Quality Management System.

3 References

DWQMS Element 19 – Internal Audits

4 Definitions and Acronyms

None

5 Procedure

Preparation

5.1 Internal audits shall only be conducted by persons approved by the QMS Representative and having the following qualifications:

- Town of Latchford employees who have completed internal audit training, or
- Employees of other operating authorities who have completed internal audit training.
- Qualified auditing contractors.

5.2 Internal Audits shall be conducted on each element of the DWQMS at least once every twelve months.

5.3 Internal audits shall be scheduled. The schedule shall be maintained by the QMS Representative, and shall include the element to be audited, the month, and the assigned Auditor.

5.4 An audit checklist(s) shall be created and maintained by the QMS Representative or Auditor. The checklist(s) shall be used by the internal Auditor as a guide, for record-keeping purposes, and for conducting the interviews and document review during the audit.

Conducting the Audit

5.5 The Auditor shall observe activities, review records, review previous internal and external audit results, and interview personnel as necessary to ensure that the status of the audited element of the QMS has been effectively covered.

Reporting the Results

5.6 The QMS representative shall review the findings of the audit with Top Management at the time of the Management Review Meeting. A completed report is also submitted to Top Management.

5.7 The QMS Representative shall maintain a summary of Internal Audit results that are to be presented for Management Review.

Corrective Action

5.8 Corrective Action is initiated when a non-conformance is identified through an Internal DWQMS audit.

5.9 The QMS Representative investigates the need for action to eliminate the root cause(s) so as to prevent the nonconformity from recurring.

5.10 The QMS Representative determines the corrective action needed and assigns responsibility and a target date for resolution.

5.11 The QMS Representative ensures corrective actions are documented on the QMS – Summary of Audit Findings form. The QMS Representative monitors the progress of corrective action(s) until they are fully resolved.

5.12 The effectiveness of corrective actions is reviewed during subsequent internal DWQMS audits. If there is evidence that the action taken was not effective, Top Management or the ORO initiates further corrective action and assigns resources as appropriate until the nonconformity is fully resolved.

Opportunities for Improvement (OFI's)

5.13 The implementation status of any identified OFIs (or rationale for not implementing an OFI) is discussed and documented during the Management Review.

5.14 The implementation of OFIs are tracked by the QEMS Representative using the QEMS – Summary of Audit Findings

6 Associated Documents & Records

QMP-14 Corrective Action Procedure
QMD-1 Latchford Operational Plan
QMD-10 Internal Audit Checklist
Summary of Findings Spreadsheet

7 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin
2	04/Oct/16	Indicated that results of the audit are to be reviewed during the management review meeting. Corrective Action Request removed. Summary of Findings to be used for corrective actions.	R. Marshall

1 Purpose

This procedure describes the Management Review process used to evaluate the continuing suitability, adequacy and effectiveness of the QMS.

2 Scope

This procedure is applicable to the Top Management of the Operating Authority, the ORO and the QMS Representative.

3 References

DWQMS Element 20 - Management Review

4 Definitions and Acronyms

None

5 Procedure

Preparation

5.1 Management Reviews shall be conducted on an annual basis

5.2 The QMS Representative, as identified in the Operational Plan, shall perform the Management Review.

5.3 The QMS Representative shall schedule the Management Review meeting, and arrange for any additional attendees.

5.4 The QMS Representative shall prepare an agenda for the meeting.

5.5 The QMS Representative shall prepare summaries of the following information, as it pertains to the waterworks, prior to the meeting:

- Incidents of regulatory non-compliance
- Incidents of adverse drinking water tests
- Deviations from critical control point limits and actions taken in response
- The effectiveness of the risk assessment process
- Results of internal and 3rd party audits
- Results of relevant emergency response testing
- operational performance
- water quality trends

- Follow-up on actions items from previous management reviews
- Status of management action items (if any) identified between reviews
- Changes in resource requirements, infrastructure, process, personnel, the Drinking Water Quality Management Standard or regulations that could affect the QMS
- Consumer feedback
- The resources needed to maintain the QMS
- The results of the infrastructure review
- Operational Plan currency, content and updates, and
- Staff suggestions and consumer feedback

Review Process

5.6 Each input item shall be reviewed in order to identify if, where and when improvements to the QMS and its procedures are required.

5.7 The QMS Representative shall make note of any changes or action items required during the course of the review.

Review output

5.8 The output from the Management Review shall include meeting minutes prepared by the QMS Representative. These minutes shall include:

- The date and time of the Management Review and the names of participants and attendees.
- Any identified deficiencies.
- A list of "action" items. All action items shall identify an individual responsible and the proposed timelines for implementation.
- Recommendation(s) for any resources needed for maintenance or improvement of the QMS.

5.9 The QMS Representative shall summarize the meeting minutes and provide the same to the Owner.

5.10 The QMS Representative shall be responsible for communication and implementation of the management review action items.

6 Associated Documents & Records

QMD-1 Latchford Operational Plan
QMD-2 Master List of Documents

7 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin
2	04/Oct/16	Added ORO to Scope and changed Top Management as being the one who holds the meetings to the QMS rep.	R. Marshall, OCWA PCT

Type of Document/Record	Designated Document Control Location (HC = Hardcopy, EC = Electronic)
Internal QMS Documents	
Emergency Contact Lists	EC - \\ocwfile\public\NEO DWQMS HC – Latchford WTP Operations Manual
Suppliers and Services List	
Sample Schedule	
Site Specific Environmental Emergency Procedures	
Standard Operating Procedures	
Operational Plan (includes QMS Procedures)	EC - \\ocwfile\public\NEO DWQMS HC – Latchford WTP HC – Municipal Office
ORO letter	HC – Latchford WTP
QMS Policy	EC - \\ocwfile\public\NEO DWQMS HC - Latchford WTP
Internal QMS Forms (Blank)	
Adverse Water Quality Incident	EC - \\ocwfile\public\NEO DWQMS HC – Latchford WTP
Call-In Report	
Community Complaint	
Environmental Incident Report	
Instrumentation Calibration/Maintenance Report	
Chain of Custody	
Loss of Pressure Incident Report (OCWA)	
Rounds Sheets	
QMS – Summary of Findings	EC - \\ocwfile\public\NEO DWQMS
External QMS Documents	
Applicable federal and provincial legislation	Online at www.e-laws.gov.on.ca
Municipal By-laws	HC - Municipal Office
Engineering schematics/plans/drawings	HC – Latchford WTP
Equipment /Maintenance Manuals	HC – Latchford WTP
Municipal Drinking Water Licence	
Drinking Water Works Permit	
Operator certificates	
Operations Manual	
Permit to Take Water	
AWWA Standards	EC - \\ocwfile\public\NEO DWQMS

Type of Document/Record	Designated Document Control Location (HC = Hardcopy, EC = Electronic)
MOE Inspection Reports	
QMS Records (Completed)	
Adverse Water Quality (AWQI) Reports	EC - \\ocwfile\public\NEO DWQMS
Annual Compliance / Summary Reports for Municipalities	
Audit Reports - External	
Audit Reports - Internal QMS	
Loss of Pressure Incident	
Management Review Documentation	
Community Complaint	EC - \\ocwfile\public\NEO DWQMS
Environmental Incident	EC - \\ocwfile\public\NEO DWQMS
Facility Logbooks	HC – Latchford WTP
Instrumentation Calibration/Maintenance Record	HC – OCWA Office in Haileybury
Laboratory Analytical Reports	EC - \\ocwfile\public\NEO DWQMS
Operator Training Records	EC - \\ocwfile\public\NEO DWQMS
QMS Communications – Internal/External	EC - Microsoft Outlook E-mail
QMS – Summary of Findings	EC - \\ocwfile\public\NEO DWQMS
Rounds Sheets	EC - \\ocwfile\public\NEO DWQMS HC – Latchford WTP
SCADA Records	HC – Latchford WTP

Revision History

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin
2	04/Oct/16	Reformatted, changed content to list document locations as opposed to revision numbers.	R. Marshall

Town of Latchford
DWQMS WORK INSTRUCTION

Title: CCP Response – Primary Disinfection	Document ID: CCPR-1
Revision: 1	Effective Date: 2/Dec/13

1 Purpose

This procedure describes the CCP limits for primary disinfection and the steps to be taken to respond to and report deviations of the limits.

2 Scope

This Work Instruction is applicable to the WTP Operators for the Town of Latchford treatment plant.

3 References

DWQMS Element 8 – Risk Assessment Outcomes

4 Definitions and Acronyms

CCP Critical Control Points

5 Procedure

5.1 The Town of Latchford Treatment Plant employs Chlorination as the source for primary disinfection. The system includes one duty cl2 pump and one standby hypo pump (back-up).

5.2 When a primary disinfection “off” alarm is activated, the operator shall shut down the on-line Hypo system and start-up the back-up Hypo system.

5.3 The operator shall review the on-line results after the start-up of the back-up Hypo system to ensure the desired disinfection level is achieved.

5.4 All primary disinfection deviations shall be reported Top Management.

5.4.1 Top Management and the ORO shall review all deviations to determine what, if any, permanent action may be required to prevent similar deviations in the future.

5.4.2 The Foreman/ORO, and the QMS Representative, shall record all incidences of deviation and include the same in summary format for Management Review.

6 Associated Documents & Records

QMD-6 Risk Assessment Master
QMP-3 Risk Assessment Procedure

7 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin

Town of Latchford
DWQMS WORK INSTRUCTION

Title: CCP Response – Secondary Disinfection	Document ID: CCPR-2
Revision: 1	Effective Date: 2/Dec/13

1.0 Purpose

The purpose of this procedure is to define the steps to be taken in response to a secondary disinfection critical limit alarm.

2.0 Scope

This procedure is applicable to the Latchford Drinking Water System operations personnel.

3.0 References

DWQMS Element 8 – DWQMS Outcomes

4.0 Definitions

None

5.0 Procedure

5.1 The critical limits for secondary disinfection is 0.62 mg/L Cl2 free chlorine

Lower Critical Limit

5.2 In the event of a low critical limit alarm the Foreman/ORO shall attempt to determine the cause of the alarm and take corrective action as follows:

5.2.1 ***Supply:*** ensure that a sufficient supply of Sodium Hypochlorite is available. If necessary, switch to alternate tank.

5.2.2 ***Pump:*** ensure that the metering pump is on and pumping effectively. If necessary, rotate pumps and repair, service or replace problem pump.

5.2.3 ***Cl2 Analyzer:*** collect a grab sample from the analyzer and test the chlorine content. If necessary calibrate, repair or replace the analyzer.

NOTE: It will be necessary to continue taking grab samples until the analyzer is repaired or replaced to ensure chlorine content remains within the proper operating range. Within every 15 min

5.2.4 ***Feed Rate:*** increase the feed rate on the pump until residual begins to rise. The Foreman/ORO shall continue to monitor the

chlorine residual until satisfied it will remain with the operating limits.

6.0 Associated Documents & Records

QMP-3 Risk Assessment Procedure
QMD-6 Risk Assessment Master

7.0 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin

Town of Latchford
DWQMS WORK INSTRUCTION

Title: CCP Response- Chemical Feed	Document ID: CCPR-3
Revision: 1	Effective Date: 2/Dec/13

1 Purpose

This Work Instruction describes the steps for responding to Chemical Feed alarms.

2 Scope

This Work Instruction is applicable to all licensed Town of Latchford Drinking Water System operations personnel.

3 References

DWQMS Element 8 – Risk Assessment Outcomes

4 Definitions and Acronyms

None

5 Procedure

5.1 The Town of Latchford Treatment Plant employs chemicals for coagulation and filtration, and secondary disinfection of water in order to produce safe drinking water.

5.1.1 The Critical Control Limits for introduction of these chemicals to the overall treatment process are defined as an “on/off” condition of the pumps and analyzers as monitored by SCADA.

5.1.2 See the appropriate CCP Response Work Instructions for disinfection and turbidity Critical Control Limits.

5.2 The following chemical feed activities are monitored and reported through SCADA:

5.2.1 Addition of Soda Ash, Poly, Alum, and Sodium Hypochlorite. There is no standard set-point for each.

5.2.2 Each chemical pump is monitored and alarmed as normally “on”. A loss of signal indicating that the pump is on will trigger an alarm.

5.2.2.1 All chemical feed systems are also visually inspected during the operator’s rounds.

5.2.2.2 Feed system components that fail may be replaced or repaired. Whenever practical, a back-up pump will be used until the duty pump can be returned to service.

5.3 5.4 All Chemical Feed System failures shall be reported to Top Management.

5.3.1 The ORO shall review all failures to determine what, if any, permanent action may be required to prevent similar failures in the future.

5.3.2 The ORO shall record all incidences of chemical feed system failure and include a summary of the same for Management Review.

6 Associated Documents

QMP-3 Risk Assessment Procedure
QMD-6 Risk Assessment Master

7 Document History

Revision	Date	Description	By
1	2/Dec/12	Initial Release	P. Laurin

Town of Latchford
DWQMS WORK INSTRUCTION

Title: CCP Response – Filter Turbidity	Document ID: CCPR-4
Revision: 1	Effective Date: 2/Dec/13

1 Purpose

This Work Instruction describes the steps to be taken in response to filtered water turbidity critical control limit alarms.

2 Scope

This procedure is applicable to the licensed Latchford Drinking Water System operations personnel.

3 References

DWQMS Element 8 – Risk Assessment Outcomes

4 Definitions and Acronyms

5 Procedure

5.1 A Critical Control high limit set-point is programmed in SCADA for filtered water turbidity for the treatment system is 0.30 NTU.

5.2 When a high limit set point alarm is indicated the operator shall take the following steps:

5.2.1 Review the previous reading for filtered water turbidity to determine if there has been a trend towards the set-point limit.

5.2.1.1 If there is a trend then the operator shall collect and analyze samples of the filter effluent to confirm the analyzer readings.

Note: If the reading does not confirm the alarm condition then the reason for the error in SCADA is to be investigated.

5.2.1.2 Examine the filter for any abnormalities. Address as found.

5.2.1.3 If no abnormalities are found, initiate backwashing of the filter(s).

5.2.1.4 Verify turbidity once the backwash cycle has been completed.

5.2.1.4.1 When turbidity levels do not drop below the set point limit, the operator shall isolate the filter and begin trouble-shooting activities.

5.2.1.4.2 The operator shall continue with trouble-shooting activities until such time as the problem is resolved.

5.3 All deviations to Filtered Water Turbidity critical control set point shall be reported to Top Management.

5.3.1 The ORO shall review all deviations to determine what, if any, permanent action may be required to prevent similar deviations in the future.

5.3.2 The ORO shall record all incidences of deviation and include a summary of the same for Management Review.

6 Associated Documents & Records

QMP-3 Risk Assessment Procedure
QMD-6 Risk Assessment Master

7 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin

Town of Latchford
DWQMS WORK INSTRUCTION

Title: CCP Response – System Pressure	Document ID: CCPR-5L
Revision: 1	Effective Date: 2/Dec/13

1 Purpose

This Work Instruction describes the CCP limits for system pressure and the steps to be taken to respond to and report deviations of those limits.

2 Scope

This Work Instruction is applicable to the all Town of Cobalt licensed drinking water system operators.

3 References

DWQMS Element 8 – Risk Assessment Outcomes

4 Definitions and Acronyms

None

5 Procedure

5.1 System pressure in the Latchford drinking water distribution system is maintained through the use of high-lift pumps.

5.2 Pump operation and are continuously monitored by SCADA.

5.3 The Critical Control limit minimum pressure set-point for the Latchford drinking water distribution system is 40psi.

5.4 In the event of a low pressure alarm, the operator shall determine the source of the pressure drop and take such action as necessary to either eliminate the source or to mitigate the impact on the distribution system. The operator action may include but not be limited to:

5.4.1 Isolating a portion of the distribution system

5.4.2 Effecting repairs to pumps, valves, hydrants or other appurtenances

5.4.3 Repairing a portion or portions of the distribution mains, with the help of Latchford Public Works personnel.

5.5 All deviations to the Critical Control Limit system pressure set point shall be reported to Top Management.

5.5.1 The ORO shall review all deviations to determine what, if any, permanent action may be required to prevent similar low pressure events in the future.

5.5.2 The ORO shall record all incidences of deviation and include a summary of the same for Management Review.

6 Associated Documents & Records

QMP-3 Risk Assessment Procedure
QMD-6 Risk Assessment Spreadsheet

7 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin

Town of Latchford

DWQMS EMERGENCY WORK INSTRUCTION

Title: Emergency Response – Treatment Plant Fire	Document ID: ERP-1
Revision: 2	Effective Date: 04/Oct/16

1 Purpose

The purpose of this Emergency Work Instruction is to describe the process to respond and recover from a Major Fire at the Latchford drinking water treatment plant.

2 Response Instruction

2.1 When fire is detected at the Water Treatment Plant the Operator shall quickly assess the severity of the fire.

2.2 If the fire is small, the operator shall extinguish it with a fire extinguisher.

2.3 If the fire cannot be extinguished the operator shall visually check to ensure everyone has evacuated the WTP. The operator shall then leave the building and contact the Fire Department (911).

2.4 The operator shall then contact the Municipal Clerk and inform him of the emergency.

2.4.1 Using the Emergency Contact List, the Operator shall contact those relevant to the emergency situation.

2.5 If the SCADA is damaged as a result of the fire the operator may have to operate the WTP manually until the SCADA can be repaired.

2.6 The WTP shall be restored to full operation.

3 Associated Documents

QMD-11 Emergency Contact List
QMD-12 Essential Supplies and Services List
QMP-12 Emergency Management Procedure

4 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin
2	04/Oct/16	2.4.1 changed ORO to Operator to make contact.	R. Marshall

Town of Latchford

DWQMS EMERGENCY WORK INSTRUCTION

Title: Pandemic	Document ID: ERP-2
Revision: 1	Effective Date: 2/Dec/13

1 Purpose

The purpose of this Emergency Work Instruction is to describe instructions for waterworks-related pandemic related emergencies.

2 Response Instruction

2.1 In the case of a pandemic related emergency, the Municipal Clerk shall take whatever precautions are necessary to ensure the safe supply of drinking water to the public.

2.2 The Municipal Clerk shall monitor absenteeism due to illness in order to be aware of potential missing coverage.

2.3 In the event that there are insufficient operators to cover the safe and legal operation of the Waterworks, the Town of Latchford may arrange coverage through a contract Operating Authority or through a Mutual Agreement with a neighbouring Municipality.

3 Associated Documents

QMD-11 Emergency Contact List
QMP-12 Emergency Management Procedure

4 History of Changes

Revision	Date	Description	By
1	3/Dec/13	Initial Release	P. Laurin

Town of Latchford

DWQMS EMERGENCY WORK INSTRUCTION

Title: Emergency Response - Vandalism	Document ID: ERP-3
Revision: 1	Effective Date: 2/Dec/13

1 Purpose

The purpose of this Emergency Work Instruction is to describe instructions for waterworks-related vandalism emergencies.

2 Response Instruction

Vandalism at the WTP

2.1 The operator shall perform an inspection of the following items to ensure the Water Treatment Plant and reservoirs are secure from unauthorized entry or vandalism.

- Security Fences
- Building Lighting
- Windows and doors in good condition and secure

2.2 The exterior doors shall be secured with proper locks and illegal entry alarms must be engaged.

2.3 Building entry alarms are included in SCADA and shall be noted by the operator if an alarm is indicated.

2.4 If the building entry alarm is tripped, the on call operator shall approach the facility carefully and if any damage or suspicious conditions exist, they shall be reported immediately to the Municipal Clerk who will then call the police and have them meet the ORO at the facility.

2.5 Once the facility has been thoroughly checked and any damage noted, the ORO shall arrange to have the damage repaired and the facility made secure.

2.6 If there is any evidence that the WTP processes have been tampered with, samples shall be taken of the system for rush testing. The ORO shall contact the Public Health Office for additional direction, if required.

2.7 Once the test results are received, the ORO shall take the necessary steps to return the facilities to normal operation.

Vandalism within the Distribution System

2.8 If the Operator is notified by SCADA of a low pressure alarm they need to determine the source of the pressure loss.

2.9 If the low pressure is the result of vandalism to one or more hydrants the ORO shall contact additional staff as required to assist with repairs or interim action.

2.10 If the system pressure drops below 15psi, the ORO shall contact the Public Health Department for additional direction.

2.11 The ORO shall shut off of the valves to the damaged hydrants and replace the hydrants, and return the distribution system to normal operation.

Reporting

2.12 The ORO shall document the incident in the logbook.

3 Associated Documents

QMD-11 Emergency Contact List

QMP-12 Emergency Response Procedure

4 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin

Town of Latchford

DWQMS EMERGENCY WORK INSTRUCTION

Title: Emergency Response – Weather Related	Document ID: ERP-04
Revision: 1	Effective Date: 2/Dec/13

1 Purpose

The purpose of this Emergency Work Instruction is to describe the steps to be considered or taken for weather related waterworks emergencies.

2 Response Instruction

2.1 In the case of a weather related emergency, the Publics Works staff shall take whatever precautions are necessary to ensure the safe supply of drinking water to the public.

2.2 The ORO shall monitor weather conditions in order to be aware of potential storm warnings or storm watches.

2.3 When Storm watches or warnings are issued, the ORO shall ensure that all chemical levels are topped up, and the fuel level for the Generator is topped up.

2.4 The ORO shall ensure that the required maintenance is performed on the emergency generator so that it is functioning when required.

2.5 During the Storm the ORO shall continue to monitor the SCADA data and ensure that the system functions as required. If an alarm goes off the ORO shall respond to the situation as per their operator training.

2.6 If the Storm results in a failure of the SCADA system, and an alarm is sent out, the ORO shall go to the Water Treatment Plant and operate the system manually. The ORO shall record the SCADA failure in the Log Book.

2.7 The ORO shall determine the cause of the failure and contact the appropriate contractor in order to repair the system.

2.8 After the Storm has passed the ORO shall ensure that the water-works has not been affected by the storm and if it has, shall ensure that the system is repaired as necessary.

2.9 The ORO shall record any incident that occurred during the weather related situation in the log book.

3 Associated Documents

QMD-11 Emergency Contact List

QMP-12 Emergency Response Procedure

4 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin

Latchford DWS

Title: Work Instruction Template	
Revision: 2	Effective Date: 05/Oct/16

This Template may be altered to suit the type of Work Instruction required. Only the Purpose, Instruction, Associated Documents & Records and Change History sections are mandatory.

1 Purpose

The purpose of this procedure is to ...

2 Scope

This procedure is applicable to ...

3 References

DWQMS Element X

4 Definitions and Acronyms

5 Instruction

6 Associated Documents & Records

7 History of Changes

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin
2	05/Oct/16	Removed document control number	R. Marshall

Title: Risk Assessment Outcomes	Rev. 2	04/Oct/16

Activity\ Process Step	Description of Hazardous Event & Corresponding Hazard	Available Monitoring & Control Measures	Likelihood	Severity	Detectability	Total	CCP?	Critical Control Limits & Response Procedures
Source Water	**Hazardous Event:** Recreational activities on the lake resulting in chemical contamination **Hazard:** Biological or chemical contamination of the source water	**Monitoring:** Monthly sampling for certain inorganic parameters; annual sampling for all applicable organic and inorganic parameters; weekly bacteriological sampling; visual observation; **Control:** No immediate control; some contaminants may be removed by treatment	1	2	1	**4**	No	**Critical Control Limit:** N/A
	Hazardous Event: Periods of high runoff carrying biological or chemical contaminants **Hazard:** Biological or chemical contamination of the source water	**Monitoring:** Annual sampling for all applicable organic and inorganic parameters; weekly bacteriological sampling; visual observation **Control:** No immediate control; the intake is down deep and some contaminants may be removed by treatment	2	1	2	**5**	No	**Critical Control Limit:** N/A
Intake	**Hazardous Event:** Collapse or breakage of single raw intake pipe **Hazard:** Loss of water supply	**Monitoring**: Alarm systems; visual observation; continuous monitoring **Control:** Temporary storage and low lift pumps shut down automatically.	2	2	2	**6**	No	**Critical Control Limit:** N/A
	Hazardous Event: Blockage/damage to the raw wet well chamber inlet **Hazard:** Loss of water supply	**Monitoring:** Alarm systems; visual observation; continuous monitoring **Control:** Temporary storage	2	2	2	**6**	No	**Critical Control Limit:** N/A

Activity\ Process Step	Description of Hazardous Event & Corresponding Hazard	Available Monitoring & Control Measures	Likelihood	Severity	Detectability	Total	CCP?	Critical Control Limits & Response Procedures
Raw Water Pumping	**Hazardous Event:** Low lift pump failure **Hazard:** Loss of water supply	**Monitoring:** Alarm systems; visual observation **Control:** Redundancy; preventative maintenance. There are 3 LL pumps all recently rebuilt.	2	2	1	**5**	No	**Critical Control Limit:** N/A
	Hazardous Event: Raw flow-meter failure or malfunction **Hazard:** Chemical dosage interruption; ineffective chemically assisted filtration and disinfection.	**Monitoring:** Alarm systems; visual observation; continuous monitoring **Control:** Manual dosage control; redundancy (filter effluent flow-meters); preventative maintenance; annual calibration.	2	2	2	**6**	No	**Critical Control Limit:** N/A
Coagulation/ Flocculation	**Hazardous Event:** Coagulant/coagulant aid interruption **Hazard:** Ineffective chemically assisted filtration.	**Monitoring:** Alarm systems; visual observation; continuous monitoring **Control:** Redundancy (2 filters; manual switchover					Yes	**Critical Control Limit:** Filters shut down at 0.9 NTU **Response Procedure:** Chemical Feed Systems Failure

Activity\ Process Step	Description of Hazardous Event & Corresponding Hazard	Available Monitoring & Control Measures	Likelihood	Severity	Detectability	Total	CCP?	Critical Control Limits & Response Procedures

Filtration	**Hazardous Event:** Failure to meet effluent turbidity requirements (turbidity <0.30 NTU in at least 95% of measurements during month) **Hazard:** Increased filter effluent turbidity; ineffective primary disinfection	**Monitoring:** Alarm systems; continuous monitoring; **Control:** Redundancy; routine backwashing; as needed caustic washes on the filters; automatic shutdown; automatic rinse-to-waste capability.					Yes	**Critical Control Limit:** Filter Effluent Turbidity ≥ 0.28 NTU (rinse-to-waste for half an hour); ≥0.30 NTU (Plant shutdown). **Response Procedure:** Filter Turbidity
	Hazardous Event: Communication failure (i.e. PLC failure). **Hazard:** Loss of filtration unit's water production; loss of water supply	**Monitoring:** Alarm systems; visual observation; continuous monitoring **Control:** Temporary storage; manual operation.	2	2	1	**5**	No	**Critical Control Limit:** N/A
	Hazardous Event: Equipment failure on filter train (filter effluent pump, turbidity analyzer). **Hazard:** Loss of water production.	**Monitoring:** Alarm systems **Control:** Temporary storage; redundancy; spare parts inventory; preventative maintenance.	2	2	1	**5**	Yes	**Critical Control Limit:** N/A
Disinfection	**Hazardous Event:** Disinfectant system failure **Hazard:** Loss of primary disinfection	**Monitoring:** Alarm systems; continuous monitoring; visual observation **Control:** Redundancy, 2 pumps; manual operation; preventative maintenance; ability to trim chlorinate.					Yes	**Critical Control Limit:** Free Chlorine Residual = >0.62 mg/L **Response Procedure:** Chemical Feed Systems Failure

Activity\ Process Step	Description of Hazardous Event & Corresponding Hazard	Available Monitoring & Control Measures	Likelihood	Severity	Detect.	Total	CCP?	Critical Control Limits & Response Procedures
Electrical/Mech.	**Hazardous Event:** Power Failure **Hazard:** Plant shutdown	**Monitoring:** Alarm systems; visual observation **Control:** Auxiliary power source; temporary storage	3	2	1	**6**	No	**Critical Control Limit:** N/A

Activity\ Process Step	Description of Hazardous Event & Corresponding Hazard	Available Monitoring & Control Measures	Likelihood	Severity	Detect.	Total	CCP?	Critical Control Limits & Response Procedures
	Hazardous Event: Standby power (generator) failure **Hazard:** Plant shutdown, loss of water supply	**Monitoring:** Alarm systems; visual observations. **Control:** Preventative maintenance; pneumatic tanks	2	4	1	**7**	No	**Critical Control Limit:** N/A
	Hazardous Event: Autodialer failure **Hazard:** Loss of detectability	**Monitoring:** Operational checks; visual observation **Control:** Preventative maintenance, calibrations.	1	2	4	**7**	No	**Critical Control Limit:** N/A
Distribution	**Hazardous Event:** High lift pump failure **Hazard:** Low distribution system pressure; contamination	**Monitoring:** Alarm systems; visual observation **Control:** Redundancy, 3 HL pumps; preventative maintenance	2	2	1	**5**	No	**Critical Control Limit:** N/A
	Hazardous Event: Low distribution system pressure (water main break, major fire, etc.) **Hazard:** Biological and chemical contamination	**Monitoring:** Alarm systems; continuous monitoring; visual observation **Control:** Isolation; high capacity pump; secondary disinfection; pneumatic tanks	3	4	1	**8**	No	**Critical Control Limit:** Distribution system Pressure = 40 PSI
	Hazardous Event: Cross-connection to household or industrial plumbing **Hazard:** Biological and chemical contamination	**Monitoring:** Routine bacteriological and chemical sampling; daily checks; consumer complaints, knowledge of aquaflow locations **Control:** Secondary disinfection; maintenance of Aquaflow systems	3	3	4	**10**	No	**Critical Control Limit:** N/A
	Hazardous Event: Low chlorine in the distribution system **Hazard:** Biological contamination	**Monitoring:** Weekly distribution sampling at ends of the system. **Control:** Alarm for low chlorine leaving the plant					Yes	**Critical Control Limit:** minimum = 0.05 mg/L **Response Procedure:** Secondary Disinfection

Revision, Review and Re-Do History

Revision date	Revision #	Comments
2015 06 05	n/a	Annual review completed.
2016 02 01		Identified loss of primary disinfection as a critical control point and added low distribution residual as a CCP
2016 06 15	n/a	Three year risk assessment re-do completed
2016 10 04	3	Added deep intake to control for source water contamination, automatic LL pump shut off added as control to collapse of intake pipe. Added 3 LL pumps to control for LL pump failure. Added 2 filters for redundancy and changed auto switchover to manual for coagulation aid interruption. Changed caustic washes from semi-annual to as needed. Added 2 pumps as redundancy for disinfection and changed CCP to >0.62. Reclassified likelihood and severity of standby power failure. Added calibrations to control for auto dialer for electrical failure. Added 3 HL pumps to control for HL failure. Added Aquaflow maintenance to control for cross-connections. Added end of system to micro sampling in the distribution system. Removed CCL and Response procedure for hazards not identified as a CCP as there are no response procedures. PLC failure and equipment failure for filtration no longer a CCP.

Latchford Drinking Water System

Title: Internal Audit Checklist	
Revision: 2	Effective Date: 05/Oct/16
Date of Audit:	Auditor(s):

DWQMS Requirement	Finding(s)
1. Quality Management System PLAN – the Operating Authority shall document a Quality Management System that meets the requirements of this Standard DO – The Operating Authority shall establish and maintain the Quality Management System in accordance with the requirements of this Standard and the policies and procedures documented in the Operational Plan.	
2. Quality Management System Policy PLAN – The Operational Plan shall document a	

Title: Internal Audit Checklist	
Revision: 2	Effective Date: 05/Oct/16
Date of Audit:	Auditor(s):

Quality Management System Policy that provides the foundation for the Quality Management System, and: a.) is appropriate for the size and type of the subject system, b.) includes a commitment to the maintenance and continual improvement of the Quality Management System, c.) includes a commitment to the consumer to provide safe drinking water, d.) includes a commitment to comply with all legislation and regulations, and e.) is in a form that provides for ready communication to all Operating Authority personnel, the Owner and the public. DO – The Operating Authority shall establish and maintain a Quality Management System that is consistent with the Policy.	
3. Commitment and Endorsement PLAN – The Operational Plan shall contain a written endorsement of its contents by top Management and the Owner	

Title: Internal Audit Checklist	
Revision: 2	Effective Date: 05/Oct/16
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DO – Top Management shall provide evidence of its commitment to an effective Quality Management System by: a.) ensuring that a Quality Management System is in place that meets the requirements of this Standard. b.) ensuring that the Operating Authority is aware of all applicable legislative and regulatory requirements, c.) communicating the Quality Management System according to the procedure for communications, and d.) determining, obtaining or providing the resources needed to maintain and continually improve the Quality management System	
4. Quality Management System Representative PLAN – The Operational Plan shall identify a Quality Management System representative. DO – Top Management shall appoint and authorise a	

Title: Internal Audit Checklist	
Revision: 2	Effective Date: 05/Oct/16
Date of Audit:	Auditor(s):

Quality Management System representative who, irrespective of other responsibilities, shall: a.) administer the Quality Management System by ensuring that processes needed for the Quality Management System are established and maintained, b.) report to Top Management on the performance of the Quality Management System and any need for improvement, c.) ensure that the current version of documents required by the Quality Management System are being used at all times, d.) ensure that personnel are aware of all applicable legislative and regulatory requirements that pertain to their duties for the operation of the subject system, and e.) promote awareness of the Quality Management System throughout the Operating Authority	
5. Document Control PLAN – The Operational Plan shall document a procedure for document control that describes how: a.) documents required by the Quality Management System are: i. kept current, legible and readily identifiable	

Title: Internal Audit Checklist	
Revision: 2	Effective Date: 05/Oct/16
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ii. retrievable iii. stored, protected, retained and disposed of. DO – The Operating Authority shall implement and conform to the procedure for Document Control and shall ensure that the Quality Management System documentation for the subject system includes: a.) the operational plan and its associated policies and procedures b.) documents determined by the operating authority as being needed to ensure the effective planning, operation and control of its operations,	
5. Record Control PLAN – The Operational Plan shall document a procedure for records control that describes how: b.) Records required by the Quality Management System are: ii. kept legible and readily identifiable iii. retrievable iv. stored, protected, retained and disposed of.	

Title: Internal Audit Checklist	
Revision: 2	Effective Date: 05/Oct/16
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DO – The Operating Authority shall implement and conform to the procedure for Records Control and shall ensure that the Quality Management System documentation for the subject system includes: a.) records determined by the operating authority as being needed to ensure the effective planning, operation and control of its operations, b.) the results of internal and external audits and management reviews	
6. Drinking –Water System PLAN – The Operational Plan shall document, as applicable: a.) for the subject system: i. a description of the system including all treatment processes and distribution system components ii. the name of the Owner and the Operating Authority iii. a process flow chart iv. a description of the raw water source	

Title: Internal Audit Checklist	
Revision: 2	Effective Date: 05/Oct/16
Date of Audit:	Auditor(s):

including: i. general characteristics of the raw water supply ii. common event-driven fluctuations and iii. any resulting operational challenges and threats v. a description of any critical upstream or downstream processes relied upon to ensure the provision of safe drinking water b.) if the subject system is an operational subsystem, a summary description of the municipal residential drinking-water system it is a part of. c.) If the subject system is connected to one or more other drinking-water systems owned by different owners, a summary of those systems which: i. indicates whether the subject system obtains water from or supplies water to those systems, and ii. names the Owner and Operating Authority of those systems. DO – The Operating Authority shall ensure that the description of the drinking-water system is kept current.	

Title: Internal Audit Checklist	
Revision: 2	Effective Date: 05/Oct/16
Date of Audit:	Auditor(s):

7. Risk Assessment PLAN – The Operational Plan shall document a risk assessment process that: a.) identifies potential hazardous events and associated hazards b.) assesses the risks associated with the occurrence of hazardous events, c.) ranks the hazardous events according to the associated risk, d.) identifies control measures to address potential hazards and hazardous events, e.) identifies critical control points, identifies a method to verify at least once a year, the currency of the information and the validity of the assumptions used in	

Title: Internal Audit Checklist	
Revision: 2	Effective Date: 05/Oct/16
Date of Audit:	Auditor(s):

the risk assessment, f.) ensures that a risk assessment is conducted at least once every thirty-six months, and g.) considers the reliability and redundancy of equipment. DO – The Operating authority shall perform a risk assessment consistent with the documented process.	
8. Risk Assessment Outcomes PLAN – The Operational Plan shall document: a.) the identified potential hazardous events and associated hazards b.) the assessed risks associated with the occurrence of hazardous events, c.) the ranked hazardous events, d.) the identified control measures to address the potential hazards and hazardous events, e.) the identified critical control points and their respective critical control limits, f.) procedures and/or processes to monitor the critical control limits, g.) procedures to respond to deviations from the critical control limits, and h.) procedures for reporting and recording deviations from the critical control limits.	

Title: Internal Audit Checklist	
Revision: 2	Effective Date: 05/Oct/16
Date of Audit:	Auditor(s):

DO – The Operating Authority shall implement and conform to the procedures.	
9. Organisational Structure, Roles. Responsibilities and Authorities PLAN – the Operational Plan shall: a.) describe the organisational structure of the Operating Authority including respective roles, responsibilities and authorities, b.) delineate corporate oversight roles, responsibilities and authorities in the case where the Operating Authority operates multiple subject systems, c.) identify person, persons or group of people within the management structure of the organisation responsible for undertaking Management Review, d.) identify the person, persons or group of people having Top Management Responsibilities required by this Standard, along with their responsibilities, and	

Title: Internal Audit Checklist	
Revision: 2	Effective Date: 05/Oct/16
Date of Audit:	Auditor(s):

e.) identify the Owner of the subject system. DO – The Operating Authority shall keep current the description of the organisational structure including respective roles responsibilities and authorities, and shall communicate this information to Operating Authority personnel and the Owner.	
10. Competencies PLAN – The Operational Plan shall document: a.) competencies required for personnel performing duties affecting drinking water quality. b.) activities to develop and maintain competencies for personnel performing duties directly affecting drinking water quality, and c.) activities to ensure that personnel are aware of the relevance of their duties and how they affect safe drinking water. DO – the Operating Authority shall undertake activities to: a.) meet and maintain competencies for personnel directly affecting drinking-water quality and shall maintain records of these activities, and b.) ensure that personnel are aware of the relevance of their duties and how they affect	

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safe drinking water, and shall maintain records of these activities.	
11. Personnel Coverage PLAN – The Operational Plan shall document a procedure to ensure that sufficient personnel meeting the identified competencies are available for duties that directly affect drinking water quality, DO – The Operating Authority shall implement and conform to the procedure. **12. Communication** PLAN – The Operational Plan shall document a procedure for communications that documents how relevant aspects of the QMS are communicated between Top Management and: a.) the Owner b.) Operating Authority personnel c.) Suppliers, and d.) The Public	

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DO – ensure that the procedure is implemented and maintained	
13. Essential Supplies and Services PLAN – The Operational Plan shall: a.) identify all supplies and services essential for the delivery of safe drinking water and shall state, for each supply or service, the means to ensure its procurement, and b.) include a procedure by which the Operating Authority ensures the quality of the essential supplies and services, in as much as they may affect the drinking water quality. DO – The Operating Authority shall implement and conform to the procedure.	

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14. Review and Provision of Infrastructure PLAN – The Operational Plan shall document a procedure for the annual review of the adequacy of the infrastructure necessary to operate and maintain the subject system. DO – The Operating Authority shall implement and conform to the procedure and communicate the findings of the review to the owner.	

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15. Infrastructure Maintenance, Rehabilitation and Renewal PLAN – The Operational Plan shall document a summary of the Operating Authority's infrastructure maintenance, rehabilitation and renewal programs for the subject system. DO –The Operating Authority shall: a.) keep the summary current, b.) communicate the programs to the Owner, and c.) monitor the effectiveness of the maintenance program	

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16. Sampling, Testing and Monitoring PLAN – The Operational Plan shall document: a.) a sampling, testing and monitoring procedure for process control and finished drinking water quality including the requirements for sampling, testing and monitoring at the conditions most challenging to the subject system b.) a description of any relevant sampling, testing or monitoring activities that take place upstream of the subject system, and c.) a procedure that describes how sampling, testing and monitoring results are recorded and shared between the Operating Authority and the Owner, where applicable. DO – The Operating Authority shall implement and conform to the procedures.	

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17. Measurement and recording Equipment Calibration and Maintenance PLAN – The Operational Plan shall document a procedure for the calibration and maintenance of measurement and recording equipment. DO – The Operating Authority shall implement and conform to the procedure.	

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18. Emergency Management PLAN – The Operational Plan shall document a procedure to maintain a state of emergency preparedness that includes: a.) a list of potential emergency situations or service interruptions, b.) processes for emergency response and recovery, c.) emergency response training and testing requirements, d.) Owner and Operating Authority responsibilities during emergency situations, e.) References to municipal emergency planning measures as appropriate, and f.) An emergency communication protocol and an up-to-date list of emergency contacts. DO – The Operating Authority shall implement and conform to the procedure.	

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19. Internal Audits PLAN – The Operational Plan shall document a procedure for internal audits that: a.) evaluates the conformity of the QMS with the requirements of this Standard, b.) identifies internal audit criteria, frequency, scope, methodology and record-keeping requirements, c.) considers previous internal and external audit results, and d.) describes how the Quality Management System corrective actions are identified and initiated. DO – The Operating Authority shall implement and conform to the procedure and shall ensure that internal audits are conducted at lest once every twelve months.	

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20. Management Review PLAN – The Operational Plan shall document a procedure for management review that evaluates the continuing suitability, adequacy and effectiveness of the Quality Management System and that includes consideration of: a.) incidents of regulatory non-compliance, b.) incidents of adverse drinking-water tests, c.) deviations form critical control point 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 action items from previous management reviews, j.) the status of management action items identified between reviews, k.) changes that could affect the Quality Management System, l.) consumer feedback, m.) the resources needed to maintain the Quality Management System, n.) the results of infrastructure review, o.) Operational Plan currency, content and updates, and p.) Staff suggestions Do - Top Management shall implement and conform to the procedure and shall:	

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a.) ensure that a management review is conducted at least once every twelve months, b.) consider the results of the management review and identify deficiencies and action items to address the deficiencies, c.) provide a record of any decisions and action items related to the management review including personnel responsible for delivering the action actions and the proposed timelines for their implementation, and d.) report the results of management review, the identified deficiencies, decisions and action items to the Owner.	
21. Continual Improvement DO – The Operating Authority shall continual strive to improve the effectiveness of its Quality	.

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Management System through the use of corrective actions.	

Document History

Revision	Date	Description	By
1	3/Dec/13	Initial Release	P. Laurin
2	05/Oct/16	Removed Document Control number	R.Marshall

	Latchford DWS Emergency Contact List	
	Revision: 2	Issued: 04/Oct/16

Emergency Contact Information

OPP, FIRE, AMBULANCE	**911**
MOECC Spills Action Center	**800-268-6060** **800-268-6061 (fax)**
MOH Timiskaming Health Unit (New Liskeard) ***After Hours: 705-647-3033***	**705-647-4305** **705-647-5779 (fax)**
MOECC Northbay Office	**800-609-5553** **705-497-6866 (fax)**
Ministry of Labour	**800-461-6325**

Town of Latchford	
George Lefevbre (Mayor)	705-676-2416 (work)
Jaime Allen (Municipal Clerk)	705-679-2416 (work)
Pat Tresidder (Operator)	705-679-3587 (cell)
Roger Clark (Operator)	705-648-9900 (cell)

OCWA	
Claude Mongrain (ORO)	705-647-2541 (cell)
Vic Legault (Operations Manager)	
Rebecca Marshall (PCT)	705-648-4267 (cell) 705-567-7974 (fax)
Ilona Bruneau (PCT)	705-648-4314 (cell)
Haileybury Office	705-672-5549 (work)

Eric Nielson (Regional Manager)	705-570-3571 (cell)

Services	
Pat Underhill Fire Chief (Latchford)	705-676-2416 (work)
HYDRO ONE Emergencies	800-461-5116
Accuracy Environmental Labs	705-642-3361 705-642-3222 (fax) 705-568-3967 (after hours)

Alaron Instruments Chart Recorder	705-497-0550 705-497-0549 (fax)
Chess Controls Instrumentation Equipment	800-461-4076 705-682-0847 (Tammy)
Cleartech DPD Reagents	800-387-7503
Earth Tech Tony Secuti	705-674-8347 705-674-8343
Gateway Electrical Motor Repairs	705-476-5814
Grant Fuels Inc. Diesel Fuel	705-647-6566
Hach Dealer Meagan Kerr	705-783-6763
Hach Canada	800-665-7635 infocanada@hach.com
John Meunier Inc (Marie Eve)	514-334-7230 514-334-2574 (Fax)
Metcom Sales & Engineering Instrumentation Equipment	905-738-2355 905-738-5520 (Fax)
Pedersen Construction General Contractor	705-647-6223
Reliable Industrial Supply Soda Ash, Hypo, Caustic, Poly	705-692-2959 705-692-2961 (Fax)
Selog SCADA support	905-873-7373 905-873-7447 (Fax)
Spec & Sons Pipe Servicing	705-866-0653 705-8665634 (Fax)
Stroma (Mike Andrew 705-717-0251) Tech Support	705-840-6000 x331 or 322 (Michael) 705-492-8193 (Claude Cell)
Tri-Ed Alarm Servicing & Parts	800-398-7282
US Filter Chlorine Parts	905-944-2800
Val's Equipment Generator Servicing	705-752-4164
Westburn Electrical	705-840-3754 877-490-1795
Xylem Pumps	705-560-2141
Dam Level	705-981-3295

Revision History

Revision #	Date	Revision	By:
1	Oct.5/16	Issued	R.Marshall

Latchford Drinking Water System

Title: Management Review Checklist	
Revision: 2	Effective Date: 05/Oct/16

MANAGEMENT REVIEW CHECKLIST

PARTICIPANTS: Patrick Laurin
Jaime Allen

DATE:

REVIEW REQUIREMENT	REVIEW RESULTS	ACTION/ASSIGNEE
Incidents of Regulatory Non-Compliance		
Incidents of Adverse Drinking Water Tests		•
Deviations from CCPs and Response Actions		•
Effectiveness of Risk Assessment		•
Internal and Third Party Audit Results	•	
Results of Emergency Response Testing		
Operational Performance		•

Latchford Drinking Water System

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Raw Water and Drinking Water Quality Trends		
Previous Management Review Action Items		
Other Identified Management Action Items		•
Changes to the QMS		
Consumer Feedback	•	•
Resources for QMS	•	•
Results of Infrastructure Review		•
Operational Plan – currency, applicability		•
Staff Suggestions	•	•
Owner Feedback	•	•

Additional Information:

Document History

Revision	Date	Description	By
1	2/Dec/13	Initial Release	P. Laurin
2	05/Oct/16	Removed document control number	R.Marshall

Latchford Drinking Water System

Title: Infrastructure Review Checklist	
Revision: 2	Effective Date: 05/Oct/16

INFRASTRUCTURE REVIEW CHECKLIST

PARTICIPANTS:

DATE OF REVIEW:

PROCESS STEP	REVIEW RESULTS	ACTION ITEMS
Source Water (Optional)		
Intake • Condition of structure • Obstructions (including natural) • Required maintenance		
Chemical Storage Area • Maintained		

(Housekeeping and H&S)		
Chemical Feed System • Condition of system components • Equipment maintenance • Satisfactory operational Results	•	
Primary Disinfection • Condition of system components • Equipment maintenance • Acceptable operational results		
Filtration • Condition of system components • Equipment		

maintenance • Acceptable operational results		
Secondary Disinfection • Condition of system components • Equipment maintenance • Acceptable operational results • Replacement components available		•
SCADA • Service calls • Reporting and alarms • Component malfunctions		
Treatment Building • Structural integrity • Overall condition • Safe access/egress • Appropriate PPE available and in good condition		

• Security • Genset condition		
Storage Reservoirs • Structural integrity • Overall condition • Chlorine boosting components • Safe access/egress • Security	•	•
Distribution • Condition of: Mains Hydrants Valves		•
Other Identified Items		

Latchford Drinking Water System

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