The Corporation of Haldimand County

Quality Management System (QMS) Operational Plan

For

Caledonia and Cayuga Distribution System

Dunnville Drinking Water System

Nanticoke Drinking Water System
TABLE OF CONTENTS

DWQMS SPECIFIC REQUIREMENTS

Element 1. Quality Management System Introduction ........................................................................ 3
Element 2. Quality Management System Policy .................................................................................. 3
Element 3. Commitment and Endorsement .......................................................................................... 4
Element 4. Quality Management System Representative ................................................................. 5
Element 5. Document and Records Control ...................................................................................... 6
Element 6. Drinking Water System Descriptions ............................................................................. 11
  • Caledonia and Cayuga Distribution System
  • Dunnville Drinking Water System
  • Nanticoke Drinking Water System
Element 7. Risk Assessment ............................................................................................................... 12
Element 8. Risk Assessment Outcomes ............................................................................................. 16
  • Confidential - Not Available to the Public
Element 9. Organizational Structure, Roles, Responsibilities and Authorities ...................................... 17
Element 10. Competencies .................................................................................................................. 20
Element 11. Personnel Coverage ....................................................................................................... 21
Element 12. Communications ............................................................................................................. 22
Element 13. Essential Supplies and Services .................................................................................... 24
Element 14. Review and Provision of Infrastructure ........................................................................... 26
Element 15. Infrastructure Maintenance, Rehabilitation and Renewal ............................................... 27
Element 17. Measurement and Recording Equipment Calibration and Maintenance ......................... 30
Element 18. Emergency Management .................................................................................................. 31
Element 19. Internal Audit .................................................................................................................. 33
Element 20. Management Review ....................................................................................................... 36
Element 21. Continual Improvement ................................................................................................... 37

Appendix A. Accepted Council meeting minutes (Council Endorsement)
Appendix B. System Drawings: (Caledonia, Cayuga, Dunnville, Hagersville, Jarvis, Lake Erie Industrial Park and Townsend)
Appendix C. Risk Assessment System Hazards Identified & Ranked (Confidential)
Appendix D. Internal Audit Documents
Appendix E. Management Review Meeting Minutes
Appendix F. Drinking Water Emergency Response Guidance Document
Element 1. Quality Management System Introduction

This document is Haldimand County’s drinking water Quality Management System (QMS) Operational Plan for the Caledonia / Cayuga water distribution system, Dunnville drinking water distribution system and the Nanticoke drinking water distribution system. The contents of this Operational Plan conform to the requirements of the Drinking Water Quality Management Standard set forth by the Ministry of the Environment. Haldimand County has created the following policies and procedures in order to establish and maintain a consistent Quality Management System.

Haldimand County owns all treatment and distribution infrastructure for three separate waterworks systems within its Municipal boundaries, however, only maintains and operates the distribution piping networks servicing the end users. A contract has been established with Veolia Water Canada Ltd. for the maintenance and operation of two water treatment plants, one elevated storage tank, two standpipe reservoirs and approximately 35 kilometres of transmission watermain located throughout three residential communities and an Industrial Park. Veolia is responsible to develop and maintain a QMS for the infrastructure identified within the contract.

Element 2. Quality Management System Policy

The Corporation of Haldimand County’s Quality Management System policies are to:

- Ensure our drinking water systems comply with all current legislation and regulatory requirements for the safe supply of drinking water;

- Ensure financial support is provided to maintain infrastructure integrity to allow safe and consistent delivery of drinking water to our water customers;

- Commit to review and update our Operational Plans as regulated by the Drinking Water Quality Management Standard in order to continually improve our Quality Management System and to communicate the results with our water customers.
Element 3. Commitment and Endorsement

The Corporation of Haldimand County supports the implementation, maintenance and continual improvement of this drinking water Quality Management System (QMS) for the County’s three water works systems, as documented in this Operational Plan.

The following representatives, acknowledge the need for and support the provision of sufficient resources to maintain and continually improve the County’s QMS. Copies of the original signed endorsement form part of this Plan as Appendix A.

Donald G. Boyle  
Chief Administrative Officer  
Haldimand County  

Nov 20/17  

Jim Matthews  
Compliance Supervisor  
Water & Wastewater Operations  

Nov 20/17  

Paul Mungar, C.E.T., CMM III  
General Manager  
Public Works Department  

Nov 20/17  

Todd Lemille  
Supervisor / ORO  
Water & Wastewater Operations  

Nov 20/17  

Jeff Oakes, A.Sc. T  
Manager  
Water & Wastewater Operations  

Nov 20/17  

Brandon Hedges  
Supervisor / ORO  
Water & Wastewater Operations  

Nov 20/17  

Jessica Ighasdzak  
QMS Representative  
Water & Wastewater Operations  

Nov 20/17

Furthermore, the Owners’ (Mayor and Council) shall support Staff endorsement of the County's Quality Management System's Operational Plan by way of Council Resolution. The Council meeting minutes and resolution where the Operational Plan was introduced and accepted by Council also form part of this Plan as Appendix A.
Element 3. Quality Management System Representative

QMS Procedure No. 01  Quality Management System Representative
Reviewed: 30-Aug-17  Revision 2  Created: 18-Nov-08

As delegated by the County's DWQMS Team, one of the three Water & Wastewater Technologists is the QMS Representative. Responsibilities under this delegation are as follows:

- Promote the QMS Plan to County staff;
- Communicate the County's QMS Plan to the Operating Authority and the Public;
- Identify needs and report on the effectiveness of the QMS to the Team's Management Advisor Members;
- Create and maintain a Document and Record Control procedure to ensure that the most current version of the QMS is in use at all times;
- Ensure that the most up to date DWQMS Legislation and Regulations, technologies or publications are available to the Team so that the best decisions can be made to improve the QMS Plan.
Element 4. Document and Records Control

QMS Procedure No. 02 Document & Records Control
Reviewed: 30-Aug-17 Revision 6 Created: 18-Nov-08

1. Purpose:
To establish a management process recognizing the need to identify, store, protect, retain and dispose of all documents and records within the scope of the County’s QMS Operational Plan.

2. Scope:
This procedure applies to all documents and records forming part of the County’s QMS Plan and is applicable to all staff that manage or perform work on or related to these systems.

3. Definitions:
Controlled Document or Record - is a document or record that must have authorization for modifications.

Document - includes a sound recording, video tape, film, photograph, chart, graph, map, plan, survey, and information recorded or stored by means of any device.

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

4. Procedure:
Internally developed QMS documents and records (whenever possible) are generated electronically to ensure legibility. Headers, titles or procedure numbers are used to distinguish documents. Handwritten records must be legible and permanently rendered in ink or non-erasable marker.

To ensure further control of QMS procedures, alpha-numeric numbers have been assigned to each. To distinguish current versions of procedures, revision numbers and review dates are included within the headers.

The following personnel are authorized to review and approve QMS procedures for the County’s water distribution system(s):

- Review Compliance Supervisor; or
- Water & Wastewater Supervisors
- Approve Manager, Water & Wastewater Operations
Current QMS documents and records are readily accessible to Water and Wastewater Operations personnel and internal or external auditors by request or at specified uncontrolled locations established by the QMS representative. Locations have been chosen based on accessibility and prevention of loss or damage. These locations are identified in Table # 1 forming part of this procedure. Any documents or records located in the designated areas are considered uncontrolled copies and should be identified, either permanently on the document or with a stamp, Uncontrolled Copy. If a document or record is not marked Uncontrolled Copy, it is to be returned to the QMS representative. The QMS representative will then determine if it should be marked and returned to that location for reference or recycled/destroyed.

All original electronic documents and records related to the QMS Plan are kept on the County’s computer network system and are available on the Water and Wastewater groups shared drive, T:\Public Works\Environmental Services\E-Environmental Services\. Access is restricted to read only. The QMS representative has administrative access to the QMS policy, procedures and the plan in order to make necessary, approved changes when requested. Any electronic documents printed from the T:\ drive will be marked as Uncontrolled Copy.

Any Water & Wastewater Operations staff may request a revision to improve an existing internal QMS procedure or document. The request must be in writing and submitted to the Compliance Supervisor, the Water and Wastewater Supervisors or the Manager of Environmental Services for their authorization. The change request form is identified as Attachment # 1, located at the end of this procedure. Once approved, the changes are to be provided to the QMS representative so the electronic version of the original procedure can be changed. The QMS representative replaces the outdated version of the procedure with the revised version within the QMS Plan. New copies are provided to all control locations by the QMS representative. All outdated versions are to be collected by the QMS representative and recycled, destroyed or retained in record retention. Table # 1 also identifies retention time periods for all relevant documents and records.

QMS documents and records are retained in accordance with applicable regulations or according to Corporate Policy, whichever governs. If there is no regulatory or corporate standard, the retention time will be at the discretion of the Manager of Environmental Services.
<table>
<thead>
<tr>
<th>Type of Document / Record</th>
<th>Controlled Document / Record Location</th>
<th>Location of Uncontrolled Copy(s) for Reference</th>
<th>Retention Time</th>
<th>Frequency of Review</th>
</tr>
</thead>
</table>
| QMS Plan Yellow Binder(s)                     | -Master Electronic Originals T:\E08 Water Works DWQMS \ Operational Plans  
-Attachment # 1 request to change sheets are located in the back of the QMS binders | Area 1 and Area2 shops, Environmental Services Water/Wastewater Tech area                                      | -Master Electronic Original forever, revising as needed  
-Uncontrolled copies replaced with revised version  
-Attachment # 1 request to change sheets kept for six (6) years | Annually, revised as needed                                                                                  |
| Internal QMS Audit Reports                   | --Master electronic originals on T drive in DWQMS folder                                               | Grey binder on compliance bookshelf in Kohler                                                                  | -Six (6) years active, brought forward every year                                                                                           | Annually                                                                                                      |
| Management Review Meeting Minutes            | --Master electronic originals on T drive in DWQMS folder                                               | Grey binder on compliance bookshelf in Kohler                                                                  | -Six (6) years active, brought forward every year                                                                                           | Annually                                                                                                      |
| All Potable Water Sample Results required under the Safe Drinking Water Act received from accredited laboratories | - Bacteriological signed originals-Environmental Services Water/Wastewater Tech area  
-Lead electronic signed originals-Environment Services Water/Wastewater Tech area  
-THM electronic signed originals -Environment Services Water/Wastewater Tech area | N/A                                                                                                                                                   | -Bacteriological Samples; current active year Environmental Services Water/Wastewater Tech area, five (5) years inactive  
-lead & THM Six (6) years | -Results reviewed as received  
-Results reviewed as received                                                                 |
| Adverse Water Quality Incidents (AWQI) Corrective Action Records/Reports under O. Reg. 170/03 | -faxed copies, signed originals all located Environmental Services Water/Wastewater Tech area, binder labelled Adverse Water Sample Notification | N/A                                                                                                                                                   | -Six (6) years active                                                                                           | -Results reviewed as received                                                                                  |
| Annual Report under Section 11, O. Reg. 170/03 | -electronic original located on T:\E08 Water Works\year end                                            | -copies available at any County office, via the County’s website or upon request                               | -Electronic Original six (6) years  
-One (1) year current active copy                                                                                                           | Annually                                                                                                      |
| Annual Summary Reports under Schedule 22, O. Reg. 170/03 | -electronic original located on T:\E08 Water Works\year end                                            | -signed copy presented to Council  
-hard copy kept with Environmental Services Water/Wastewater Tech area                                          | -Electronic Original six (6) years  
-One (1) year current active copy                                                                                                           | Annually                                                                                                      |
| Annual Permit to Take Water Report under O. Reg. 170/03 | -electronic original located on T:\E08 Water Works\year end                                            | -signed copy presented to MOE  
-hard copy kept with Environmental Services Water/Wastewater Tech Area                                          | -Electronic Original six (6) years  
-One (1) year current active copy                                                                                                           | Annually                                                                                                      |
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Location/Control</th>
<th>Frequency/Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drinking Water System Distribution Maps</td>
<td>-electronic original located with GIS/CAD Technician in Engineering Services Division</td>
<td>-hard copies located in Area 1 and Area 2 Shops for staff review • Master Electronic Original forever, revising as needed</td>
<td>-reviewed and updated, if necessary, every 30 days</td>
</tr>
<tr>
<td>Water &amp; Wastewater Standard Operating Procedures (SOP’s) Red Binder(s)</td>
<td>electronic original located on T:\ E00 Environmental Services • General\ES’s SOPs</td>
<td>-hard copy: located in Area 1 and Area 2 Shop, Caledonia and Cayuga Reservoirs and Kohler office • revised as needed • Revision request to change forms to be kept for six (6) years</td>
<td>-reviewed annually</td>
</tr>
<tr>
<td>Distribution System Maintenance Records</td>
<td>• Hydrant sheets • Valve sheets • Main breaks N/A</td>
<td>-Area 1 and Area 2 Shops control and file their original signed or initialled records • Minimum two (2) years in Water &amp; Wastewater Supervisor’s office</td>
<td>As needed</td>
</tr>
<tr>
<td>Monitoring Equipment Instruction Manuals &amp; Calibration Reports</td>
<td>-original records provided by qualified testing company retained in Water &amp; Wastewater Supervisor’s office</td>
<td>-copies provided to each shop, Area 1 and Area 2 for reference • Minimum two (2) years active in each respective office</td>
<td>Annually</td>
</tr>
<tr>
<td>Drinking Water Works Permit(s), Drinking Water Works License(s), Change Forms 1, 2, 3 and Schedule C</td>
<td>T:\E08 Water Works\DWQMS\Permits &amp; Licenses</td>
<td>-hard copy located Environmental Services office, binder labelled Ontario MDWL &amp; DWWP on Tech shelf • All documents are kept for 10 years</td>
<td>As needed</td>
</tr>
<tr>
<td>Certificates of Approval</td>
<td>N/A</td>
<td>-hard copy located Environmental Services office, binder labelled Certificates of Approval on Tech shelf • C of A’s are kept, for seven (7) years</td>
<td>As needed</td>
</tr>
<tr>
<td>Permits to Take Water</td>
<td>-scanned PDF copy located on T:\ E08 Water Works then select Dunnville or Nanticoke then the C of A file.</td>
<td>-hard copy located Environmental Services office, binder labelled Permits to Take Water on Tech shelf • Current and last versions kept on file (NOTE: PTTW for Dunnville and Nanticoke only)</td>
<td>As needed</td>
</tr>
<tr>
<td>Emergency Response Guidance Document</td>
<td>-electronic original located on “T” drive accessible by Compliance Group only in order to make required / requested changes</td>
<td>-hard copies located as Appendix F forming part of the County’s QMS Operational Plan • Current version is updated as needed This document has been identified as a &quot;Living Document&quot;</td>
<td>Annually</td>
</tr>
<tr>
<td>After Hour Call-Out Binder</td>
<td>-hard copies located in Area 1 and Area 2 Shops for staff review N/A</td>
<td>-each shop updates their version as needed to reflect their system needs. These binders have been identified as a &quot;Living Documents&quot;</td>
<td>As needed</td>
</tr>
</tbody>
</table>
Attachment # 1
Haldimand County Operational Plan – Request for Change

System Operational Plan to Change: ____________________________________________

Element Title and Number to Change: _________________________________________

Procedure Title and Number to Change: ______________________________________

Revision Number: ________________ Revision Date: ________________

List proposed changes below or affix a changed copy of the current policy or procedure.

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

Person Requesting Change: _________________________________________________

Date: ___________________________________________________________________

Changes Authorized By: _____________________________________________________

Date: ___________________________________________________________________

Comments:

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________
Element 5. Drinking Water System Description

Haldimand County owns all treatment and distribution infrastructure for three separate waterworks systems, however, only maintains and operates the distribution piping network servicing the end users. Veolia Water Canada Ltd. has been contracted to maintain and operate all treatment plant processes, two standpipes, a booster station, one elevated storage tank and approximately 35km of transmission watermain. Veolia will be submitting their operational plan for accreditation as the operating authority for the above infrastructure.

Table # 1 – County Water Distribution Systems Data Scheduled for Report to Council: 28-Feb-17 (PW-WW-01-2017)

<table>
<thead>
<tr>
<th>Area</th>
<th>Residents (2011 Census Canada)</th>
<th>Watermain Length (km)</th>
<th>Hydrants</th>
<th>Main Line Valves</th>
<th>Service Connections / Water Meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caledonia and Cayuga System</td>
<td>11,387</td>
<td>69.2</td>
<td>389</td>
<td>711</td>
<td>6,439</td>
</tr>
<tr>
<td>Dunnville System</td>
<td>5,759</td>
<td>40.8</td>
<td>226</td>
<td>458</td>
<td>2,358</td>
</tr>
<tr>
<td>Nanticoke System</td>
<td>6,359</td>
<td>37.7</td>
<td>238</td>
<td>398</td>
<td>2,191</td>
</tr>
</tbody>
</table>

All County assets; valves, hydrants and pipes, have been mapped on system distribution drawings for operator use. The maps will form part of this Plan as Appendix B.

Mapping updates are currently completed on a continual basis by the County's Engineering Services GIS/CAD Tech.
Element 6.  Risk Assessment

QMS Procedure No. 04  Risk Assessment Procedure
Reviewed: 03-Mar-14  Revision 3  Created: 07-Nov-08

1. Purpose:
To describe the process used to identify, assess and rank the risks associated with potential hazards or hazardous events throughout any of the County’s water distribution systems.

The method and criteria used to assess the potential hazards or hazardous events has been included in the body of the QMS. The County has elected to include the actual hazards and ratings as Appendix C forming part of the Operational Plan.

2. Scope:
This procedure is limited to identifying and ranking potential drinking water health hazards that impact the supply, delivery and quality of the treated water.

3. Definitions:
Consequence - the potential impact to public health and/or operation of the drinking water system if a hazard or hazardous event is not controlled.

Control Measure - includes any processes, physical steps or other practices that have been put in place at a drinking water system to prevent or reduce a hazard or hazardous event before it occurs.

Critical Control Point (CCP) - an essential step or point in the subject system at which control can be applied by the Operator to prevent or eliminate a drinking water health hazard or reduce it to an acceptable level.

Detectability - the ability to identify or detect a hazard or hazardous event.

Drinking Water Health Hazard—means, in respect of a drinking water system,
   a) A condition of the system or a condition associated with the system’s waters, including anything found in the waters,
      i. That adversely affects, or is likely to adversely affect, the health of the users of the system;
      ii. That deters or hinders, or is likely to deter or hinder, the prevention or suppression of disease, or
      iii. That endangers or is likely to endanger public health;
   b) A prescribed condition of the drinking water system, or
c) A prescribed condition associated with the system’s waters or the presence of a prescribed thing in the waters

_Hazard_ - is a source of danger or a property that may cause drinking water to be unsafe for human consumption. The hazard may be biological, chemical, physical or radiological in nature.

_Hazardous Event_ - is an incident or situation that can lead to the presence of a hazard.

_Likelihood_ - the probability of a hazard or hazardous event occurring.

4. Procedure:
The QMS Representative gave a Risk Assessment & Emergency Preparedness Presentation to the Environmental Services water and wastewater field staff.

As part of the overview, a chart was provided to the staff to identify system hazards see below;

<table>
<thead>
<tr>
<th>Identify Hazard or Hazardous Event</th>
<th>What Control Measures are Currently in Place?</th>
<th>Can a Control Measure be implemented or improved? Please state what or how.</th>
</tr>
</thead>
</table>

Collectively, field staff completed a chart for each of the six communities within Haldimand’s boundaries. These charts were returned to the QMS Representative at which time a team was created in order to assess and rank each identified hazard. The team consisted of:

Paul Mungar, Manager of Environmental Services
Jeff Oakes, Supervisor / ORO Water & Wastewater
Craig Thomson, COIC Water & Wastewater
Warren Wight, QMS Representative

The following rating system was used to rank each identified hazard or hazardous event. _Risk Value_ = Likelihood + Consequence + Detectability

<table>
<thead>
<tr>
<th>Likelihood Rating System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Rare</td>
</tr>
<tr>
<td>Unlikely</td>
</tr>
<tr>
<td>Possible</td>
</tr>
<tr>
<td>Likely</td>
</tr>
<tr>
<td>Very likely</td>
</tr>
</tbody>
</table>
Consequence Rating System

<table>
<thead>
<tr>
<th>Description</th>
<th>Consequence of Hazardous Event Occurring</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insignificant</td>
<td>Insignificant impact, little public exposure, little or no health risk</td>
<td>1</td>
</tr>
<tr>
<td>Minor</td>
<td>Limited public exposure, minor health risk</td>
<td>2</td>
</tr>
<tr>
<td>Moderate</td>
<td>Minor public exposure, health impact on small part of the population</td>
<td>3</td>
</tr>
<tr>
<td>Major</td>
<td>Large part of population at risk</td>
<td>4</td>
</tr>
<tr>
<td>Catastrophic</td>
<td>Major impact for large part of the population, complete failure of system</td>
<td>5</td>
</tr>
</tbody>
</table>

Detectability Rating System

<table>
<thead>
<tr>
<th>Description</th>
<th>Consequence of Hazardous Event Occurring</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Detectable</td>
<td>Easy to detect, on-line monitoring through SCADA</td>
<td>1</td>
</tr>
<tr>
<td>Moderately Detectable</td>
<td>Moderately detectable, alarm present but not in SCADA, may require operator to walk by and notice alarm; problem is indicated promptly by in-house lab test results</td>
<td>2</td>
</tr>
<tr>
<td>Normally Detectable</td>
<td>Normally detectable, visually detectable on rounds or through regular maintenance</td>
<td>3</td>
</tr>
<tr>
<td>Poorly Detectable</td>
<td>Poorly detectable, visually detectable but not inspected on a regular basis; not normally detected before problem becomes evident; lab tests are not done on a regular basis</td>
<td>4</td>
</tr>
<tr>
<td>Undetectable</td>
<td>Cannot be detected</td>
<td>5</td>
</tr>
</tbody>
</table>

**NOTE:** all hazards or hazardous events identified were ranked as if there were no current control or back-up measures in place. Once a Risk Value was calculated, the team implemented a “cap” to better identify a Critical Control Point (CCP) limit. This limit was 10 out of a potential 15 points. In the case where an event having a higher calculated risk value is not determined by the risk assessment group to be critical, an explanation of the reasoning for this distinction is provided. An explanation of the reasoning is also required if the risk assessment team was to deem an event with a lower calculated risk to be critical as well. These hazards or hazardous events have been identified within Element 8 and Appendix C.

From the identified critical events, the risk assessment group then traces backwards through the water process to determine the specific points where each critically hazardous event originates. These points then become critical control points. The final point in a series that leads to a critical event is identified as the critical control point.

Critical control points require the establishment of controlled conditions, including critical control limits, equipment redundancy and control and recover procedures.

Critical limits are established for values that measure critical events. The limits provide operators with a range of acceptable values within which no preventive or correction actions are required.
Critical limits define the point at which an operator must take action to prevent escalation of the critical event or to correct the critical event.

Critical limits are determined based on regulatory requirements, process monitoring capabilities, off-hours response time and historical performance trends. Audio or dial-out alarms, where available, are all set at a level near the critical limit as a first warning measure and at the critical limit as redundancy notification.

5. Risk Assessment Commitment:
Annually the Risk Assessment Team will review the method used to assess the noted risks and confirm the validity of the assumptions used in the risk assessment.

Environmental Services Water and Wastewater staff will commit to re-assessing the noted risks once every thirty-six (36) months in order to improve the Risk Value to reflect better control measures or rehabilitated infrastructure.

Newly discovered hazards or hazardous events will be added, assessed and rated by the Risk Assessment team or their appointed delegates, on a needed basis as they are identified.


**Element 7. Risk Assessment Outcome**

As part of the County’s risk assessment outcome notes, several SOP’s have been identified that provide necessary instruction to key County staff to address or manage hazard or hazardous events. Also, SOPs exist that instruct staff on routine maintenance tasks necessary to ensure infrastructure is still viable and in good repair.

Appendix C, of the QMS Plan lists the hazards or hazardous events identified by water and wastewater field staff for the County's water distribution systems. The majority of the hazards or hazardous events are common threats throughout the three drinking water systems; Caledonia and Cayuga, Dunnville and Nanticoke. To distinguish system specific hazards or hazardous events, the actual waterworks name will be highlighted in the first column.

Appendix C has been identified as a CONFIDENTIAL document. Haldimand County has included it in the submission to the MOE Director as part of the application process.

Appendix C is not available for public review.
Element 8. Organizational Structure, Roles, Responsibilities and Authorities

Below is the organization chart for positions that are impacted by the County’s QMS Plan. A brief description of the identified positions roles and responsibilities follows.

```
Corporation of Haldimand County
Mayor & Council (Owners)

Chief Administration Officer

Director Engineering Services

Supervisor Water & Wastewater Capital Projects

General Manager Public Works Department (Senior Management)

Manager Water & Wastewater Operations (Senior Management)

Compliance Supervisor (Management Advisor)

Operating Authority Veolia Water Canada

Water & Wastewater Technologists (3) (1 Tech is QMS Rep & 1 is Lead)

Supervisor (2) Water & Wastewater (Management Advisor)

Chief-Operator-in-Charge (COIC - 2) (Operator/Maintenance System Specialist)

Distribution System Operators (14)
```
Mayor and Council
The Mayor and Council representing the Corporation of Haldimand County have the overall responsibility and authority to ensure that the County’s three waterworks systems meet all legislation and regulatory requirements. Their decisions on where and how to allocate funds necessary to commit to the safe operation of the waterworks is based on recommendations from the General Manager of Public Works and the Manager of the Environmental Services Division.

Chief Administration Officer
The Chief Administration Officer’s primary role with respect to the Quality Management System is to keep the Mayor and Council apprised of the QMS Plan, its objectives, goals, updates and improvements as recommended by the QMS Team.

Director Public Works Department & Manager of Water & Wastewater Operations
These two positions have been identified as the Senior Management positions within the QMS Team. The main roles of these positions are:
- Responsible for completing Management Review and communicating the results with the owner
- Ensure staff and funds are available to complete all DWQMS tasks
- Ensure DWQMS training is provided to staff
- Make decisions respecting the QMS and recommendations to the owner respecting the subject system
- Must sign off on the Operational Plan
- Will commit to implementing and following the QMS Policy Statement
- Will keep the owner apprised of the DWQMS progress

Compliance Supervisor and Water & Wastewater Supervisors
These three positions have been identified as the Management Advisor Member positions within the QMS Team. The main roles of these positions are:
- Ensure their staff have proper training to participate in the DWQMS
- Assist in completing the QMS Plan
- Advise on limit of detail needed for QMS Plan
- Provide direction / input on key decision conflicts that may arise

Chief Operator-In-Charge (COIC)
These two positions have been identified as the Operator / Maintenance System Specialists within the QMS Team. The main roles of these positions are:
- Advise / make change recommendations to SOP’s and daily logs
• Provide accurate records of work orders to justify billing of services
• Provide input in the creation of SOP’s
• Assist with document and file locations
• Assist in ensuring consistency in daily operations is practiced and maintained

**Water and Wastewater Technologists**
Currently, one of the three full-time Techs has been assigned both the QMS Team Lead and the QMS Representative roles within the QMS Team. The main roles of these two assignments are:

**QMS Team Lead**
• Create an implementation action plan and keep it up to date
• Carry out the implementation tasks or designate to others
• Coordinate and organize meetings, timelines and all correspondence for Team so Top Management can present to Owner
• Apprise staff of their responsibilities, inquire as to training needs related to DWQMS and orientate staff awareness

**QMS Representative**
• Complete a Gap Analysis
• Read, write, review and create procedures and a timeline
• Interview staff for input on QMS policy and field task procedures
Element 9. Competencies

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

<table>
<thead>
<tr>
<th>Position</th>
<th>Required Competencies</th>
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</table>
| Water & Wastewater Supervisors  | • Management/Supervisory/Financial skills  
                                  | • Leadership training                                                                 |
|                                 | • Operator certification of the highest type and class of subsystem, in good standing |
|                                 | • Purchasing Authority up to $20,000                                                  |
| Chief Operator-In-Charge (COIC) | • Supervisory skills                                                                    |
|                                 | • Operator certification in good standing                                              |
|                                 | • Purchasing authority up to $500                                                     |
|                                 | • WHMIS training                                                                       |
|                                 | • Confined Space training                                                              |
|                                 | • Valid class G driver’s Licence                                                      |
|                                 | • ½ day Risk Assessment evaluation facilitated by QMS Rep. (every 3 years)            |
| Operator                        | • Operator certification in good standing                                              |
|                                 | • WHMIS training                                                                        |
|                                 | • Confined Space training                                                              |
|                                 | • Valid class G driver’s Licence                                                       |
|                                 | • ½ day Risk Assessment evaluation facilitated by QMS Rep. (every 3 years)            |

Certified operators are responsible for completing the annual training hours required to maintain Operator Certification. The Water & Wastewater Supervisors take reasonable steps to ensure that every opportunity is given to attend certified training necessary to meet the certification legislation.

In addition to above certification requirements, the QMS Rep. has implemented 1½ hour quarterly workshop sessions for all operators. The workshop topics will reflect the County’s Operational Plan contents and are intended to stimulate discussion. This change is reflective of the inefficient annual 4 hour training sessions previously performed.
Element 10. Personnel Coverage

QMS Procedure No. 06

<table>
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<tr>
<th>Reviewed</th>
<th>Revision</th>
<th>Personnel Coverage</th>
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<tbody>
<tr>
<td>30-Aug-17</td>
<td>4</td>
<td>15-Jan-09</td>
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1. Purpose:
   To describe the process for ensuring that competent personnel are available for duties that directly affect drinking water quality.

2. Scope:
   Applies to operations personnel responsible for all distribution piping systems within the County.

3. Definitions:
   Competency – an integrated set of requisite skills and knowledge that enables an individual to effectively perform the activities of a given occupation.

4. Procedure:
   Haldimand County’s waterworks distribution systems, regular working hours for Operations: 8hr. Shift- 07:30 to 16:00 Monday to Friday.
   Personal Coverage for after-hours/weekend/Stat Holiday has been identified under Haldimand County’s, Water and Wastewater Operations Division Standard Operating Procedures (SOPs).

   SOP # ES-GA-02 Assignment of an “Overall-Responsible-Operator” and a “Chief-Operator-In-Charge”

   The Water & Wastewater Supervisors are responsible for approving vacation time for staff in a manner which ensures a sufficient complement of personnel is available for the performance of normal operating duties.
Element 11. Communications

<table>
<thead>
<tr>
<th>QMS Procedure No. 07</th>
<th>Communications</th>
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<tbody>
<tr>
<td>Reviewed: 30-Aug-17</td>
<td>Revision 4</td>
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<tr>
<td>Created: 15-Jan-09</td>
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</table>

1. Purpose:
   To describe the procedure for QMS related communications between Haldimand County, Veolia, suppliers and the public.

2. Scope:
   Applies to the County's waterworks distribution systems, internal and external communications regarding QMS implemented for the County.

3. Definitions:
   N/A

4. Procedure:
   The QMS Representative is responsible for identifying and coordinating any system specific communications in relation to the status and development of the QMS Plan. Other responsibilities include ensuring that Senior Management is promptly informed regarding QMS related matters with County wide significance.

   The continuing suitability, adequacy and effectiveness of the QMS Plan are communicated to the owner as part of the QMS Procedure No. 11 Management Review. Ongoing QMS updates are provided to the owner during regularly scheduled meetings and through electronic and verbal communications.

   Media inquiries must be directed to the Manager of Water and Wastewater Operations. The Manager will coordinate with the appropriate County personnel, if required, prior to responding.

   Haldimand County’s QMS Plan is communicated to the public through the County’s Website. The QMS Plan is also posted in designated areas around the County as per QMS Procedure No. 01 Document and Record Control.

   All inquiries; questions, complaints or comments, related to the County’s QMS Plan shall be directed to the QMS Representative either directly or via the QMS team’s Senior Management representatives. These may originate from the Mayor and Council, county employees, the public or other municipalities. All inquiries will be tracked using a simple spreadsheet format with the electronic file accessible for read
only on the T:\ drive. It is the QMS Representative’s responsibility to track the inquiries and address each in a timely manner. The inquiry and follow-up feedback will be provided for discussion at the Management Review meetings.

Internal and External communication responsibilities and reporting requirements for emergency situations are set out under the County’s Emergency Response Plan. Refer to QMS Procedure No. 09 Emergency Management.
Element 12. Essential Supplies and Services

<table>
<thead>
<tr>
<th>QMS Procedure No. 08</th>
<th>Essential Supplies and Services</th>
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<tr>
<td>Reviewed: 30-Aug-17</td>
<td>Revision 4</td>
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<td>Created: 15-Jan-09</td>
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</table>

1. Purpose:
To describe the procedure for identifying essential supplies and services and ensuring quality requirements and procurement methods are established and communicated.

2. Scope:
This procedure covers all products and services that are deemed to be essential to the delivery of safe drinking water to the County’s waterworks distribution systems.

3. Definitions:
   Essential Supplies and Services - supplies and services deemed to be critical to the delivery of safe drinking water.

4. Procedure:
A list titled “Haldimand County Essential Supplies and Services Contact List”, has been created to identify companies that the County contacts for the purchase of all essential supplies or services necessary for the delivery of safe drinking water. This list identifies redundant companies that are capable of supplying the parts, material, equipment or services, with the exception of sodium hypochlorite. Through discussion with Veolia Canada, the County has established a redundant supply of sodium hypochlorite in the event our supplier is unable to provide this product. This list is comprised of excavation contractors, suppliers of equipment and materials, piping, valves, hydrants etc., fuel needs and water quality testing services.

Supply or service providers are selected based upon their qualifications and ability to meet the needs without compromising operational performance and compliance with applicable legislation and regulations. Annually, FORM # 1 is provided to each company on the list to be completed and returned. This list is maintained by the County’s two Water and Wastewater Operations Supervisors.

Purchasing is conducted in accordance with Haldimand County’s Corporate Procurement and administration policies, procedures and guidelines.
DATE

To whom it may concern:

Essential Supplies and services are those deemed to be critical to the delivery of safe drinking water within Haldimand County. This is one of the aspects of the County’s Drinking Water Quality Management Operational Plan.

A requirement of the County’s plan is to annually review and update our list of Essential Supply and Service Providers. Your company is currently identified on this list, therefore, it is important that you complete the information below and return to the Water and Wastewater Operations Division. A signed original is required for our files so please drop off at any of the county’s satellite offices or return via mail to the address below.

<table>
<thead>
<tr>
<th>Company Name</th>
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<tbody>
<tr>
<td>Product / Service Provided</td>
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<tr>
<td>Regulatory Standards i.e. AWWA, CSA, NSF/ANSI etc.</td>
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<tr>
<td>Company Contact</td>
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</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Business Phone</td>
<td></td>
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<tr>
<td>Cell Phone</td>
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<tr>
<td>E-mail</td>
<td></td>
</tr>
<tr>
<td>Fax</td>
<td></td>
</tr>
</tbody>
</table>

☐ I (we) would like to remain on Haldimand County’s Essential Supplies and Services contact list.

☐ I (we) would like to be removed from Haldimand County’s Essential Supplies and Services contact list.

Authorized Representative:

_________________________________  ____________________________________  _________________
Print                                   Signature                            Date

Kohler Office, 1162 Kohler Road 8, Cayuga, Ontario  N0A 1E0
Phone: (905) 318-5932 · Fax: (905) 772-3779
www.HaldimandCounty.on.ca
Element 13. Review and Provision of Infrastructure

QMS Procedure No. 09  Review and Provision of Infrastructure
Reviewed: 30-Aug-17  Revision 3  Created: 10-Feb-09

1. Purpose:
   To document a procedure for the annual review of the adequacy of the infrastructure and resources necessary to operate and maintain the County’s drinking water system.

2. Scope:
   This procedure applies to all waterworks distribution systems within the County.

3. Definitions:
   *Infrastructure* - the set of interconnected structural elements that provide the framework for supporting the operation of the drinking-water system, including buildings, workspace, process equipment, hardware and software and supporting services, such as transport or communication.

   *Rehabilitation* - the process of repairing or refurbishing an infrastructure element.

   *Renewal* - the process of replacing the infrastructure element with new elements.

4. Procedure:
   Haldimand County's Engineering Services Division shall maintain a 10 year capital budget replacement forecast list for the distribution system that assists with preparation of the proposed annual operating and capital budget for the following year.

   Annually, the Manager of Water and Wastewater Operations organizes a meeting with key staff to review, discuss and recommend priority system needs yet to be identified on the 10 year capital budget replacement forecast list. The annual recommendations are based on MOECC compliance inspection reports, water quality or quantity trends, staff suggestions and consumer feedback. Once completed, the list is forwarded to the Engineering Services Division where it is incorporated into the 10 year capital budget replacement forecast list.

   The General Manager of Public Works takes the capital budget report to Council for their approval annually.
Element 14. Infrastructure Maintenance, Rehabilitation and Renewal

QMS Procedure No. 10 Infrastructure Maintenance, Rehabilitation and Renewal
Reviewed: 30-Aug-17  Revision 3
Created: 18-Nov-08

The Water & Wastewater Operations Supervisors maintain a scheduled program of inspection and maintenance tasks for waterworks equipment and distribution system components. Equipment is maintained and operated as per manufacturers instruction, including any calibration requirements. Equipment instruction manuals are typically kept with the piece of equipment. Maintenance and calibration records are kept as per Table #1 forming part of QMS Procedure No. 01 Document and Record Control.

Planned maintenance, rehabilitation or replacement of distribution infrastructure is performed as per the annual capital budget forecast recommendations, approved by Council. These job tasks are determined based on deterioration of sections of pipe due to age or soil conditions, current material or size of pipe, number of main breaks as recorded in the maintenance sheets, MOECC recommendations or orders, customer feedback identifying poor flow, low pressure or continuous dirty water areas of the system. These tasks are usually scheduled well in advance of commencement.

Unplanned job tasks; typically caused by main breaks, damaged hydrants, valves or low system chlorine residuals are identified as unscheduled events and tracked through work orders. The County relies on a software package called Worktech to manage daily calls from the public, record the concerns and provide direction to field staff for response. In turn, field staff documents their investigation, resolution or note if additional follow-up is required on the work order. The work orders are tracked and utilized for analysis and historical purposes. These tasks fall under the annual operations budget, approved by Council.

Manual updates to the water distribution maps are currently completed by field staff to indicate main breaks or system infrastructure changes. These maps are forwarded to Engineering Services, GIS/CAD Tech so the original electronic drawing can be modified.
Element 15. Sampling, Testing and Monitoring

QMS Procedure No. 11

Sampling, Testing and Monitoring

Reviewed: 30-Aug-17
Revision 3

Created: 15-Jan-09

1. Purpose:
   To describe the procedure for sampling, testing and monitoring for process control and finished drinking water.

2. Scope:
   This procedure applies to sampling, testing and monitoring activities that take place both upstream and within the County’s waterworks distribution systems. It identifies the County’s interaction with contracted Operating Authority, Veolia Water Canada and with the City of Hamilton.

3. Definitions:
   N/A

4. Procedure:
   All sampling, monitoring and testing has been identified under Haldimand County’s, Water and Wastewater Operations Division Standard Operating Procedures (SOPs);

   *SOP # ES-WD-01: Water Distribution System Sampling Requirements*

   *SOP # ES-WD-02: Method for Obtaining a Bacteriological Drinking Water Sample for Analysis from Haldimand County Water Distribution System.*

   *SOP # ES-WD-03: Method for Obtaining a Bacteriological Drinking Water Re- Sample for Analysis from Haldimand County Water Distribution System.*

   *SOP # ES-WD-04: Distribution Drinking Water Adverse Sample Notification Initiated By Accredited Laboratory.*

   *SOP # ES-WD-05: Distribution Drinking Water Adverse Sample Notification Initiated By County Water & Wastewater Operations Staff.*

   All analytical results from laboratory reports are maintained as per QMS Procedure No. 02 – Document & Records Control.
For all water sampling, monitoring, testing, quality analysis and results taken upstream of the County’s distribution systems, the Operating Authority responsible for the supply of the potable water to the County is to provide this information. Both Veolia Water Canada and the City of Hamilton provide all drinking water analytical sampling results to the County; bacteriological on a weekly basis via e-mail, Schedule 23 and 24 requirements on an annual basis within the reporting practices of the regulations, anything in addition to regulatory requirements on an as performed basis. NOTE: in the event of an adverse result, immediate verbal and written notification is provided to the County from the respective Operating Authority. All documentation provided is reviewed by County staff and filed as per QMS Procedure No. 02 – Document & Records Control.
Element 16. Measurement and Recording Equipment Calibration and Maintenance

QMS Procedure No. 12 Measurement and Recording Equipment Calibration and Maintenance

Reviewed: 30-Aug-17  Revision 3
Created: 15-Jan-09

1. Purpose:
   To describe the process for the calibration and maintenance of measurement and recording equipment used by County staff to monitor the distribution system.

2. Scope:
   This procedure applies to the measurement and recording equipment used to monitor the quality of the treated water within all waterworks distribution systems within the County.

3. Definitions:
   N/A

4. Procedure:
   All measurement and recording equipment calibration and maintenance activities must be performed by appropriately trained and qualified personnel or by a qualified third party calibration service provider.

   Calibration and maintenance activities are carried out in accordance with procedures specified in the manufacturer's manual.

   Any measurement device which does not meet its specified performance requirements during calibration must be removed from service until repaired or replaced.

   Calibration and maintenance records and maintenance/equipment manuals are maintained as per QMS Procedure No. 01 Document & Records Control.
Element 17. Emergency Management

QMS Procedure No. 13

1. Purpose:
   To describe the process followed to maintain a state of emergency preparedness for Haldimand County.

2. Scope:
   Applies to potential operations emergency situations or service interruptions identified for all waterworks distribution systems within the County.

3. Definitions:
   Emergency Response Plan – a corporate level plan for preparedness for high level multidiscipline emergencies.

   Hazard – is a source of danger or a property that may cause drinking water to be unsafe for human consumption. The hazard may be biological, chemical, physical or radiological in nature.

4. Procedure:
   Identifying Potential Emergencies

   Haldimand County has established a list of mandatory contingencies for potential emergency situations or service interruptions. These are:
   • Potential or actual unsafe water
   • Catastrophic equipment failure that impacts the ability to provide service
   • Power failure that impacts the ability to provide service
   • Accidental release that could impact the environment
   • Main Breaks
   • Critical injury
   • Critical shortage of staff

   In the event of an emergency situation, staff can reference the Public Works Department, Water and Wastewater Operations Division's Drinking Water Emergency Response Guidance Document (ERGD) forming part of this plan, identified as Appendix F.
The Risk Assessment Table shall be used for identifying potential emergency situations that may arise. Since the Risk Assessment is reviewed annually, as per QMS Procedure No. 02 Risk Assessment, if any additional emergencies are identified they shall be added to the list by the QMS Representative.

**Emergency Response Training**

All water/wastewater personnel shall receive general emergency response training at least once every two years, as managed, arranged and recorded by the Supervisor. Personnel who are identified with specific response roles shall receive additional training to cover their additional responsibilities.

This training shall include a review and discussion of emergencies that occurred since the previous training, and a review of the response work instructions. Any recommended edits to the response work instructions shall be communicated to the QMS representative, to be carried out.

The QMS Representative ensures the results of the Emergency Response Training are included as input to the management review process.

**Distribution of Procedures**

The Drinking Water Emergency Response Guidance Document forms part of the County’s Operational Plan, therefore, copies will be available in all locations of the Operational Plan.
Element 18. Internal Audits

QMS Procedure No. 14

1. Purpose:
   To describe the process for conducting internal audits that evaluates the conformance of Haldimand County QMS to the requirements of the Drinking Water Quality Management Standard (DWQMS).

2. Scope:
   The objective of this audit is to determine whether the drinking water Quality Management system (QMS) implemented in Haldimand County conforms to the requirements of the Ministry of the Environment and Climate Control’s Drinking Water Quality Management Standard (DWQMS). This procedure applies to all activities within the scope of the QMS implemented in Haldimand County as documented in the Operational Plan.

3. Definitions:
   Internal QMS Audit – a systematic and documented internal verification process that involves objectively obtaining and evaluating documents and process to determine whether a quality management system conforms to the requirements of the DWQMS.

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

   Nonconformity – non-fulfillment of a requirement.

4. Procedure:
   The QMS Representative will notify the Manager of Water and Wastewater Operations to ensure that an internal QMS audit is conducted for the system on an annual basis by personnel with adequate skills, training and/or experience.

   In consultation with operations, the QMS team establishes the audit criteria and develops the internal audit protocol to be used by the auditor(s). Protocol questions are designed to encompass all of the requirements of the DWQMS. Additional information is included in the protocol to provide clarification on the purpose and application of the requirement. The protocol is reviewed annually and updated as necessary by the QMS Team.
The auditor(s) review the approved policy and procedures, the results of previous internal and external QMS audits, the status of corrective and preventive actions and other QMS related documentation prior to the audit.

The auditor(s) follows the audit protocol and engage in activities that may include asking questions, observing operations and reviewing documents and records. Nonconformities with reference to specific documents and details are recorded on the audit protocol along with any additional comments and suggestions.

Upon completion of the final audit report, Attachment #2, the auditor(s) review the results and identified nonconformities with the Manager of Water and Wastewater Operations. The audit report and supporting documentation are filed by the QMS Representative and retained as per QMS Procedure No. 02 Document & Records Control.

When non-conformity is identified through the internal audit process, an action plan to rectify the issue is developed by the Management Team specifying responsibility and a target date for resolution. The Manager of Water and Wastewater Operations or designate monitors progress of the action plan related to the identified nonconformity until it is fully resolved.

The QMS Representative ensures that any necessary revisions to the QMS policy or procedures are completed and communicated to relevant facility personnel.

The QMS Representative ensures that results of the audit are included as input to the management review process.

- Audit Criteria
  - The Drinking Water Quality Management Standard
  - Current QMS manuals, procedures, documents and records
  - Audit report identified as Attachment # 2 (next page)
##Attachment # 2

###OPERATING AUTHORITY:

###AUDIT TYPE: Annual Internal Audit

###DRINKING WATERWORKS SYSTEMS:

<table>
<thead>
<tr>
<th>REQUIREMENT ↓</th>
<th>SYSTEM →</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
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<tbody>
<tr>
<td>1. Quality Management System</td>
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<td>2. Quality Management System Policy</td>
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<td>3. Commitment and Endorsement</td>
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<td>4. Quality Management System Representative</td>
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<td>5. Document and Records Control</td>
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<td>6. Drinking-Water System</td>
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<td>7. Risk Assessment</td>
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<td>8. Risk Assessment Outcome</td>
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<tr>
<td>9. Organizational Structure – Roles, Responsibilities &amp; Authorities</td>
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<td>10. Competencies</td>
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<td>11. Personnel Coverage</td>
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<td>12. Communications</td>
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<td>13. Essential Supplies and Services</td>
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<td>14. Review and Provision of Infrastructure</td>
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<td>15. Infrastructure Maintenance Rehabilitation &amp; Renewal</td>
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<td>16. Sampling, Testing and Monitoring</td>
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<td>17. Measurement &amp; Recording Equipment Calibration &amp; Maintenance</td>
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<td>18. Emergency Management</td>
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<td>19. Internal Audit</td>
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<tr>
<td>20. Management Review</td>
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<tr>
<td>21. Continual Improvement</td>
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###Major non-conformity. The auditor has determined one of the following:
- A required element of the DWQMS has not been incorporated into a QMS;
- A systemic problem with a QMS is evidenced by two or more minor non-conformities; or
- A minor non-conformity identified in a corrective action request has not been remedied

###Minor non-conformity. In the opinion of the auditor, part of a required element of the DWQMS has not been incorporated satisfactorily into a QMS

###Opportunity for improvement. Conforms to the requirement, but there is an opportunity for improvement.

###Conforms to requirements.

###Not applicable to this audit.

###Additional comments added by audit team in the body of the report.

###Audit Report:

<table>
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<tr>
<th>Auditor Approval</th>
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07-Nov-17
Element 19. Management Review

QMS Procedure No. 15

Reviewed: 30-Aug-17
Revision 3

Management Review
Created: 19-Jan-09

1. Purpose:
To describe the procedure for conducting a Management Review of the Quality Management System (QMS) for Haldimand County.

2. Scope:
Applies to the review of the QMS implemented for all waterworks distribution systems within the County.

3. Definition:
Management Review – a formal (documented) meeting conducted at least once every 12 months by Senior Management to evaluate the continuing suitability, adequacy and effectiveness of QMS.

4. Procedure:
The QMS Representative determines a suitable frequency for Management Review meetings for the drinking water system. As a minimum, review must be conducted at least once every 12 months.

Management Reviews for more than one drinking water system will be conducted at the same meeting provided the system belongs to the same owner and the considerations listed below are taken into account for each individual system and documented in the Management Review meeting notes.

The standing agenda for Management Review meeting is as follows:

a) Incidents of regulatory non-compliance,
b) Incidents of adverse drinking-water test,
c) Deviations from 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 on action items from previous Management Reviews,
j) The status of management action items identified between reviews,
k) Changes that could affect the QMS,
l) Consumer feedback,
m) The resources needed to maintain the QMS,
n) The results of the infrastructure review,
o) Operational plan currency, content and updates and
p) Staff suggestions.

The QMS Representative coordinates the Management Review, creates an agenda identifying participants' responsibilities and in advance of the Management Review meeting, distributes the agenda along with any related reference material to all the participants.

The Management Review participants review the data presented and make recommendations and/or initiate action plans to address identified deficiencies as appropriate.

The QMS Representative ensures that the notes and action plans resulting from the Management Review meeting are prepared and distributed to the appropriate QMS team members and Haldimand County staff.

The Manager of Water and Wastewater Operations or designate monitors the progress and documents the completion of action plans resulting from the Management Review.

**Element 20. Continual Improvement**

In conjunction with the internal QMS audit and Management Review Process documented above, Haldimand County is devoted to continuous improvements to our QMS Plan.
APPENDIX A

Accepted Council Meeting Minutes and
Copy of Original Signed Commitment & Endorsement

The Corporation of Haldimand County

Caledonia / Cayuga Water Distribution System

Dunnville Water Distribution System

Nanticoke Waterworks Water Distribution System
(Hagersville – LEIP – Townsend – Jarvis)
4. AND THAT project and funding approval is conditional upon compliance with Haldimand County Policy 2011-01 and County standards, permits and processes.

CARRIED (Unanimously 7-0)

OTHER BUSINESS:
None.

Mayor Hewitt assumed the Chair for this portion of the meeting.

MOTIONS OF CONSENT

Recommendation 10
Moved By: Councillor Shirton
Seconded By: Councillor Grice

THAT the following reports/memorandums be received as information:

1. PW-WW-M01-2016 Re: Annual Drinking Water Quality Management Standard (DWQMS) Update
2. PW-WW-02-2016 Re: 2015 Drinking Water Quality Reports
3. CMS-GL-01-2016 Re: Grandview Lodge Operations Update September to December, 2015
4. CS-CL-M02-2016 Re: Annual Freedom of Information Update (2015 Reporting Year)

AND THAT the recommendations as contained in the following reports be adopted:

PW-ES-05-2016 RE: CHESTNUT STREET, DUNNVILLE – PARKING CONTROL BY-LAW AMENDMENTS

1. THAT Report PW-ES-05-2016 Re: Chestnut Street, Dunnville – Parking Control By-law Amendments dated January 18, 2016 be received;
2. AND THAT Haldimand County Parking Control By-law 307/02, Schedule “C” No Parking – Dunnville, be amended as outlined in Report PW-ES-05-2016;
3. AND THAT Haldimand County Parking Control By-law 307/02, Schedule “D” Restricted Parking - Dunnville, be amended as outlined in Report PW-ES-05-2016;
4. AND THAT Haldimand County Parking Control By-law 307/02, Schedule “H” Physically Disabled Parking - Dunnville, be amended as outlined in Report PW-ES-05-2016;
5. AND THAT Haldimand County Winter Control Parking By-law 302/02, Schedule “A” Snow Routes - Dunnville, be amended as outlined in Report PW-ES-05-2016.
CS-HR-01-2016 RE: 2016 OCCUPATIONAL HEALTH AND SAFETY POLICY AND PROGRAM

1. THAT Report CS-HR-01-2016 Re: 2016 Occupational Health and Safety Policy and Program dated January 15, 2016 be received;

2. AND THAT the 2016 Occupational Health and Safety Program be approved as outlined in Report CS-HR-01-2016;

3. AND THAT Policy No. 2015-01 be rescinded and replaced with the 2016 Occupational Health and Safety Policy as outlined in Attachment #5 to Report CS-HR-01-2016.

CARRIED (Unanimously 7-0)

DEPARTMENTAL STAFF REPORTS (CONTINUED)

PUBLIC WORKS BUSINESS
Councillor Shirton, Chair of Public Works, assumed the Chair for this portion of the meeting.

PW-ES-08-2016 RE: IMPROVEMENTS TO THE MUNICIPAL DRAIN MAINTENANCE PROCESS
Recommendation 11
Moved By: Councillor Morison
Seconded By: Councillor Corbett

THAT Report PW-ES-08-2016 Re: Improvements to the Municipal Drain Maintenance Process dated January 18, 2016 be received as information.

CARRIED (Unanimously 6-0)
Mayor Hewitt was absent for the vote.

OTHER BUSINESS:
None.

JOINT SERVICES BUSINESS
Councillor Corbett, Chair of Joint Services, assumed the Chair for this portion of the meeting.

OTHER BUSINESS:
1. Councillor Dalmonte advised that Social Services staff extend an invitation to members of Council to sit in on the Ontario Works intake process. Similarly, the Salvation Army in Dunnville extends an invitation to members of Council to help deliver food from the food bank.
3. Commitment and Endorsement

The Corporation of Haldimand County supports the implementation, maintenance and continual improvement of this drinking water Quality Management System (QMS) for the Nanticoke water distribution system, as documented in this Operational Plan.

The following representatives, acknowledge the need for and support the provision of sufficient resources to maintain and continually improve the QMS and therefore, have endorsed it below.

Donald G. Boyle  
Chief Administrative Officer  
Haldimand County

Geoff Rae, M.B.A., P.Eng., CMM III  
General Manager  
Physical Services Department

Paul Mungall, C.E.T., CMM III  
Manager  
Environmental Services Division

Jeff Daines, A.Sc.T  
Supervisor / ORO  
Water & Wastewater Operations

Compliance Supervisor  
Environmental Services Division

Warren Wight, C.E.T.  
QMS Representative  
Environmental Services Division

Furthermore, the Owners’ (Mayor and Council) shall support Staff endorsement of the County’s Quality Management System’s Operational Plan by way of Council Resolution. The Council meeting minutes and resolution where the Operational Plan was introduced and accepted by Council, form part of this Plan as Appendix A.
APPENDIX B

Water Distribution System Maps

The Corporation of Haldimand County

Caledonia / Cayuga Water Distribution System

Dunnville Water Distribution System

Nanticoke Waterworks Water Distribution System
(Hagersville – LEIP – Townsend – Jarvis)
APPENDIX C

Risk Assessment

The Corporation of Haldimand County

Caledonia / Cayuga Water Distribution System

Dunnville Water Distribution System

Nanticoke Waterworks Water Distribution System
(Hagersville – LEIP – Townsend – Jarvis)

Last Risk Assessment Review: 18-Dec-15
APPENDIX D

Internal Audit Documents

The Corporation of Haldimand County

Caledonia / Cayuga Water Distribution System

Dunnville Water Distribution System

Nanticoke Waterworks Water Distribution System
(Hagersville – LEIP – Townsend – Jarvis)
Corporation of Haldimand County Quality Management System (QMS) Operational Plan

QMS Procedure No. 14 – Internal Audits – Audit Report Attachment

2017 Internal Audit Report – Summary of Findings

Schedule for Internal Audit:

<table>
<thead>
<tr>
<th>System(s) Audited</th>
<th>Location &amp; Auditee Personnel</th>
<th>Date / Time</th>
<th>Auditor(s)</th>
</tr>
</thead>
</table>
| Dunnville Drinking Water Distribution | Area 1 W & WW Staff  
  ➢ Audit Location: Hagersville Shop  
  o Todd DeMille, Supervisor (ORO)  
  o Dave Watson, Chief Operator in Charge (COIC) | 10-Oct-17 1:30pm | Jessica Ignaszak, W&W Lead |
| Caledonia/Cayuga Drinking Water Distribution | Area 2 W & WW Staff  
  ➢ Audit Location: Dunnville Shop  
  o Brandon Hedges, Supervisor (ORO)  
  o Craig Thompson, Chief Operator in Charge (COIC) | 19-Oct-17 08:30am | Joe Kuriger, QMS Lead |
| Nanticoke Drinking Water Distribution |                                                                                             |               |                          |

Introduction: To conduct an internal audit of staff knowledge of the County’s Quality Management System and the Operational Plan required under the Drinking Water Quality Management Standard (DWQMS).

Audit Objectives and Scope: The objective of this audit is to determine whether the drinking water Quality Management System (QMS) of the above identified systems conform to the requirements of the MOE’s Drinking Water Quality Management Standard (DWQMS). The auditors’ role is to find gaps between what is documented in the plan and answers provided during staff interviews or facility document and record review.

Audit Method: Divide the Public Works, Water and Wastewater Operations Division into two manageable groups and conduct on site staff interviews. Two auditors will perform all individual audits ensuring to document all responses provided.

Only the Elements that have been audited are included within the Audit Notes.

Audit Results: A summary of all discussion topics, questions asked and answers provided will be compiled into the Audit Notes together with the audit team’s observations / non-conformance findings. These results will be provided to all staff as part of the Internal Audit Report. Discussions around resolutions to identified “opportunity for improvement”, “minor or major non-conformance findings” will take place at the Senior Management Debrief scheduled for November 24th, 2017.
QMS Procedure No. 14 – Internal Audits – Audit Report Attachment

2017 Internal Audit Report – Summary of Findings

<table>
<thead>
<tr>
<th>OPERATING AUTHORITY:</th>
<th>Corporation of Haldimand County</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AUDIT TYPE:</strong></td>
<td>Annual Internal Audit</td>
</tr>
<tr>
<td><strong>DRINKING WATERWORKS SYSTEMS WITHIN THE QMS OPERATIONAL PLAN:</strong></td>
<td></td>
</tr>
<tr>
<td>a. Caledonia and Cayuga Distribution System</td>
<td></td>
</tr>
<tr>
<td>b. Dunnville Drinking Water System</td>
<td></td>
</tr>
<tr>
<td>c. Nanticoke Drinking Water System</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REQUIREMENT</th>
<th>QMS OPERATIONAL PLAN</th>
<th>(a, b, c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22. Quality Management System</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>23. Quality Management System Policy</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>24. Commitment and Endorsement</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>25. Quality Management System Representative</td>
<td>Mn</td>
<td></td>
</tr>
<tr>
<td>26. Document and Records Control</td>
<td>OFI</td>
<td></td>
</tr>
<tr>
<td>27. Drinking-Water System</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>28. Risk Assessment</td>
<td>OFI</td>
<td></td>
</tr>
<tr>
<td>29. Risk Assessment Outcome</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>30. Organizational Structure – Roles, Responsibilities &amp; Authorities</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>31. Competencies</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>32. Personnel Coverage</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>33. Communications</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>34. Essential Supplies and Services</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>35. Review and Provision of Infrastructure</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>36. Infrastructure Maintenance Rehabilitation &amp; Renewal</td>
<td>OFI*</td>
<td></td>
</tr>
<tr>
<td>37. Sampling, Testing and Monitoring</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>38. Measurement &amp; Recording Equipment Calibration &amp; Maintenance</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>39. Emergency Management</td>
<td>OFI*</td>
<td></td>
</tr>
<tr>
<td>40. Internal Audit</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>41. Management Review</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>42. Continual Improvement</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

**Mj** Major non-conformity. The auditor has determined one of the following:
- d) A required element of the DWQMS has not been incorporated into a QMS;
- e) A systemic problem with a QMS is evidenced by two or more minor non-conformities; or
- f) A minor non-conformity identified in a corrective action request has not been remedied

**Mn** Minor non-conformity. In the opinion of the auditor, part of a required element of the DWQMS has not been incorporated satisfactorily into a QMS

**OFI** Opportunity for improvement. Conforms to the requirement, but there is an opportunity for improvement.

**C** Conforms to requirements.

**n/a** Not applicable to this audit.

**Additional comments added by audit team in the body of the report.**
4 QUALITY MANAGEMENT REPRESENTATIVE
Minor Non-Conformance
At the time of the audit, a QMS rep for the county was not identified. Staff did not know who they
should contact if they had DWQMS questions or concerns. The County needs to assign the role of
QMS rep to a staff member and have them take on the associated responsibilities.

5 DOCUMENT AND RECORD CONTROL
Opportunity for Improvement
Operational maps are being updated on an annual basis. If staff are making decisions in the field
based on these maps, they may not be accurate. To ensure all staff are using the most recent
system maps, update timelines should adhere to Table #1 – Location of DWQMS Documents/Records
Some items are out of date within the QMS and SOP binders a full review should be completed on
a regular basis and updates made as necessary.

7 RISK ASSESSMENT
Opportunity for Improvement
The County’s risk assessment is out of date and missing some new risks. The ranking system also
needs updating. From an operations perspective the risks listed are not adequate and a request
has been made to be more involved in the process.

15 INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL
Opportunity for Improvement
A prioritized and ranked list of all water mains in the County has been created. The County should
establish a defined process for reviewing and updating the list. This list may need to be included
in Element 5 as a controlled document.

18 EMERGENCY MANAGEMENT
Opportunity for Improvement
Additional QMS training for staff is encouraged, which should include mock disasters and how to
effectively respond to a potential emergency.
The Emergency Response Guidance Document should be reviewed annually (as per Table #1) and
updated accordingly. The review should include all water and wastewater staff.

General Audit Notes:
The scope of this audit included an onsite review of QMS, SOP and call Binders. Interview style questions
were asked of the Area Supervisor and CIOC based on these documents. The purpose was to determine
if the binders are being used and reviewed.

Most information was up to date but showed an opportunity for improvement to ensure up to date and
consistent information is being used by all areas.

Audit Report
Auditor Approval
Joseph Kuriger
Jessica Igassanik
APPENDIX E

Management Review Meeting Minutes

The Corporation of Haldimand County

Caledonia / Cayuga Water Distribution System

Dunville Water Distribution System

Nanticoke Waterworks Water Distribution System
(Hagersville – LEIP – Townsend – Jarvis)
DWQMS – Haldimand County Management Review Meeting # 7 - Agenda

Required:

Jeff Oakes, Top Management       Paul Munger, Top Management
Warren Wight, QMS Rep.           Joe Kuriger, QMS Lead

1. Review Minutes and action items of 09-Nov-15 Meeting:

2. Address Items a) through p) Identified in Element 20:
   a. Incidents of regulatory non-compliance
   b. Incidents of adverse drinking-water tests
   c. Deviations from 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 on 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 the infrastructure review
   o. Operational Plan currency, content and updates
   p. Staff suggestions

3. New Business
   a. Proposed Changes to the DWQMS

4. Next Meeting:
DWQMS – Haldimand County
Management Review Meeting # 7 - Minutes

Attendees:
Jeff Oakes, Top Management
Paul Munger, Top Management
Warren Wight, QMS Rep.
Jessica Ignaszak, WWW Tech

1. Review Minutes / Action Items from 09-Nov-15 Meeting:
   • Completed action items were removed from list and
     outstanding action items were modified to reflect any
     identified changes and completion dates.

2. Address Items a) through p) Identified in Element 20:
   a) Incidents of regulatory non-compliance
      • 2016 MOECC Facility inspections were conducted on:
        o Dunnville Waterworks System, 06-Jul-16;
        o Caledonia/Cayuga Distribution Waterworks System, 15-Aug-16;
        o Nanticoke Waterworks System, 11-Jan-17.
      There were no NON-COMPLIANCE WITH REGULATORY
      REQUIREMENTS AND ACTIONS REQUIRED for any of the three
      waterworks systems.
   b) Incidents of adverse drinking water tests
      There were no ADVERSE DRINKING WATER QUALITY results from
      any of the three waterworks systems.
   c) Deviations from critical control point limits and response actions
      • County has responded to all alarms as per procedures
        before limits for any CCP’s were compromised.
   d) The efficacy of the risk assessment process
      • County staff conducted a review of the Risk Assessment
        Plan on December 18, 2015. All identified changes or
        modifications were made prior to January 2016.
   e) Internal and third-party audit results
      • External audit was conducted by SAI Global November 14
        and 15, 2016. Summary of Findings forms part of the
        Operational Plan. SAI Global found no non-conformities
        with the County’s Quality Management System. December
        6, 2016 SAI Global provided accreditation for 2017.
      • Internal audit was conducted and the Summary of Findings
        forms part of the Operational Plan. There were no identified
        non-conformances.
   f) Results of emergency response testing
• Several Emergency Response Policy improvement meetings were conducted throughout 2016. Meetings were to establish specific protocols for specific emergencies i.e. water main river crossing out of service.

g) Operational performance
• In 2016, all requirements and production demands were met.

h) Raw water supply and drinking water quality trends
• County staff have created distribution spreadsheets for data entry of all regulatory water sample results. The spreadsheets will assist with identifying potential system problem areas and will allow staff to monitor sample result trends.
• County and Veolia staff meet on a monthly basis to review, interpret and discuss all process performance trends for all drinking waterworks systems. Trends include but are not limited to; raw water flows, treated water flows, chemical demand, Raw/all filters/settled/finished water turbidities. All concerns, issues and updates on capital/operational projects also form part of the meeting. Discussions are tracked and circulated via meeting minutes.

i) Follow-up on action items from previous management review
• QMS Rep. will monitor completion dates of all recorded action items and provide any follow-up necessary to ensure status of the item is provided.

j) The status of management action items identified between reviews
• A follow-up e-mail to all parties will be sent in February 2016 requesting a status update on the action items identified from this Management Review meeting.

k) Changes that could affect the QMS
• N/A

l) Consumer feedback
• Haldimand County initiated and completed a water meter replacement project for two communities; Caledonia and Dunnville.
• Project start date was January 4, 2016 and 98% completion was obtained by December 31, 2016.
• Project success is credited to positive customer relations and past project feedback related to communication techniques
• Requests, inquiries and complaints are handled within a reasonable time and consistently with protocol.

m) The resources needed to maintain the QMS
Corporation of Haldimand County Quality Management System (QMS) Operational Plan

- Staff resources and financial availability was provided in 2016 ensuring the Quality Management System was maintained and conformed with the DWQMS.

n) The results of the infrastructure review
  - 2016 Capital Projects related to water infrastructure were documented and prioritized in January 2016.
  - September 2016 the 2017 Capital Projects related to water infrastructure were documented and prioritized for the 2017 year. A report for the 2017 budget was presented and approved by Council in December 2016.

o) Operational Plan currency, content and updates
  - All change request forms generated since last audit were reviewed and upon approval, corrections to the Operational Plan were made. In circumstances were the change request isn’t approved, rational is provided to the party requesting the change. In cases where minor “wordsmithing” to the Operational Plan is required, it has been determined that a change request form is not required.

p) Staff suggestions
  - There were no staff suggestions for 2016

3. New Business:
   - There was no new business discussed

Meeting Adjourned.

Action Items:

<table>
<thead>
<tr>
<th>Item</th>
<th>Action</th>
<th>Responsibility(s)</th>
<th>Status/Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Schedule tour of Niagara Analytical for WWW Supervisors and compliance group</td>
<td>Warren</td>
<td>17-Feb-17</td>
</tr>
<tr>
<td>2</td>
<td>Provide DWQMS introduction/awareness information to Jeff for inclusion in “New Hire” Orientation checklist package</td>
<td>Warren/Jessica</td>
<td>17-Feb-17</td>
</tr>
<tr>
<td>3</td>
<td>Incorporate DWQMS introduction/awareness into Haldimand County “New Hire” Orientation Checklist package</td>
<td>Jeff Oakes</td>
<td>28-Feb-17</td>
</tr>
<tr>
<td>4</td>
<td>Schedule DWQMS, Quality Management System training for new staff</td>
<td>QMS Rep.</td>
<td>As required</td>
</tr>
<tr>
<td>5</td>
<td>Follow-up with Supervisors completion of the OFI reports for their respective Elements</td>
<td>Warren</td>
<td>28-Feb-17</td>
</tr>
<tr>
<td>6</td>
<td>Schedule emergency response mock disaster</td>
<td>Warren</td>
<td>28-Feb-17</td>
</tr>
<tr>
<td></td>
<td>Create and Conduct the disaster and document all outcomes and findings</td>
<td>Warren/Jessica</td>
<td>31-May-17</td>
</tr>
<tr>
<td></td>
<td>Schedule a debrief to discuss strengths and weaknesses to identify opportunities for improvement</td>
<td>Warren</td>
<td>31-Jul-17</td>
</tr>
</tbody>
</table>
APPENDIX F

Drinking Water Emergency Response Guidance Document

The Corporation of Haldimand County

Caledonia / Cayuga Water Distribution System

Dunnville Water Distribution System

Nanticoke Waterworks Water Distribution System
(Hagersville – LEIP – Townsend – Jarvis)