



Operational Plan

for

Township of Clearview

Municipal Drinking Water Systems

System Name	Waterworks #	MDWL #	DWWP #
Stayner	220001138	099-106	099-206
Creemore	220001101	099-105	099-205
New Lowell	220003706	099-101	099-201
Nottawa	260005411	099-102	099-202
Colling-Woodlands	260005398	099-103	099-203
Buckingham Woods	250001420	099-104	099-204

Ownership: Clearview Township

Operating Authority: Clearview Township

Endorsed By: Clearview Council and Top Management

Approval Date: April 8, 2019



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1. Overview

The Corporation of the Township of Clearview owns and operates 6 municipal water systems. Stayner, Creemore, New Lowell and Nottawa systems are classified as Large Municipal Residential. The other two Colling-Woodlands & Buckingham Woods are classified Small Municipal Residential.

As elected officials Clearview Council are the owner and act on behalf of Clearview Township. This plan defines top management as the CAO, Director of Public Works, Deputy Director of Public Works, and Public Works Manager. Management reviews are performed by top management, with results being presented to the owner (elected municipal officials).

The New Lowell water system is connected to the New Tecumseth pipeline which runs from Collingwood to Alliston. Details with regards to this connection can be found in the Operations and Maintenance Manual for the New Lowell water system.

This plan is a series of documents that outlines the processes and procedures for the overall quality management of the Township of Clearview drinking water systems. The plan is divided into sections for each element required by the Drinking Water Quality Management Standard.

2. Quality Policy

It is Clearview Township's aim to ensure safe drinking water to the end user within all Township-operated Water Systems. Through this policy the Township commits to follow all applicable Legislation & Regulations that are associated with the safety and the delivery of Drinking Water. Through maintenance and continual improvement to the Quality Management System the Township is identifying, measuring, controlling and improving the various core water works processes that will ultimately lead to improved water works performance.

Council Resolution: Confirming By-Law 19-42_April 8, 2019

This Policy shall serve as the foundation of our Drinking Water Quality Management System. It will be communicated to the public through posting of the policy on the Township of Clearview website. It will be communicated to all Water Works Employees through general meetings, and to new employees upon hiring.

3. Endorsement

This Operational Plan is supported and endorsed by Clearview Council and Top Management. Upon election of new officials, the following documents are to be endorsed...

- DWQMS Quality Policy
- DWQMS Operational Plan

Please refer to Appendix J for the Council Resolution and Top Management Endorsement.

4. QMS Representative

Please see Section 9.2.7 of this Plan for Roles, Responsibilities, and Authorities Overview of the QMS Representative.

5. Documents & Records Control

5.1 QMS Document Control (Other than Records)

This procedure is applicable to the following QMS documents:

- Operational Plan
- Quality Policy
- Procedures
- Audit Checklists
- Forms
- Equipment Manuals
- As Built Drawings

Creating New or Updating Existing Documents

Any employee of the Water Department may request the creation of a new QMS document or a change to an existing one. The request must be made either verbally or in writing and submitted to the QMS Representative. The need for new or updated documents may also be identified by audits or management review. The QMS Representative will be assigned the task of creating or revising these documents. The form titled “Document Revision Request” is to be filled out by either the person making the request or the QMS Representative prior to developing the change. The Operational Plan revisions will be tracked using the Record of Revisions page associated with the Plan. In this case the revision request form does not need to be filled out.



Refer to the “Creating a Document “procedure for standardized formats before creating a new document. Standardized formatting will ensure all QMS related documents are identifiable and legible.

If approved, the QMS Representative shall develop the new / changed document and implement it into the QMS. Documents can be created by all water works employees. All documents will be reviewed by the QMS Representative or Manager before being used. Once a document has been approved the QMS Representative will assign it a document number and add it to the Document Control Table. The Document Control Table will be reviewed for currency every 6 months by the QMS Rep. or designate.

* The “Document Revision Request” form is available in the Appendices section of this manual.

Approving Documents

The Operational Plan will be endorsed by the Township Mayor, Deputy Mayor and members of Council through regular scheduled council meetings. The Plan will be introduced as per the Procedure By-Law. Top Management will also endorse the Plan. The Plan will be introduced to top management through a general meeting. The Plan will be re-introduced and endorsed upon a new election of officials. It will be the QMS Representative’s role to introduce the Plan.

All QMS related documents, other than the Operational Plan, shall be approved by the QMS Representative before implementation. The Manager in the absence of the QMS Rep. has the authority to approve a document change for a temporary period. The document must still be reviewed and approved by the QMS Rep. when he / she returns to their duties.

The QMS Representative shall be responsible for or shall appoint a water works employee to ensure that copies of the new or changed documents are distributed. Obsolete documents (due to changes) shall be collected and disposed of by the QMS Representative, or someone appointed by the QMS Representative. The appropriate staff will be notified by email after a change has been made to a document.

Reviewing Documents

The QMS Representative and Water Works employees will review the Operational Plan and Operation & Maintenance Manuals annually.

Document Availability

All relevant operations & maintenance procedures, instructions, forms, and checklists are retained in binders at the pumphouse or at the office of the Foreman, Manager or QMS Representative. To access forms and checklists follow the file location of the master which is entered on the Document Control Table. If unable to locate a document, ask QMS Rep. or Public Works Clerk for assistance. Once the document is retained the user should double check that the latest version is being used. This can be done by cross referencing it with the control table.



All available equipment manuals are retained at the office of the Public Works Manager or at the pumphouse.

All available pumphouse and system drawings are retained at the Public Works building in the records storage room or the water offices.

Water distribution system overall plans are available to all water operators as a layer to the Township's GIS mapping system this can be accessed by desktop computer or mobile device. Printed drawings are stored in the Manager's office in a place made readily available to all water operators. There is also a system overall drawing located in the O&M manual at each pumphouse.

Document printed / paper copies referred to in the master lists as stored in the "Water office" are in the filing cabinet or on the bulletin board in the Public Works Manager's office.

Document Storage

For a complete list of document storage see the Document Control Table.

5.2 QMS Working Documents

Refer to "Doc. # 082 General Data Entry Procedure" for a procedure with regards to working documents.

5.3 QMS Records Control

This procedure is applicable to all records that demonstrate conformance to DWQMS requirements. All records that demonstrate compliance are covered by Ontario Regulations 170/03 and 128/04.

All QMS records that pertain to O. Reg. 170/03 or O. Reg. 128/04 are retained as stated in the regulation. All other records will follow the Retention by-law or the Record Control Table Doc. #042.

Unless the QMS Representative, Manager or Director state otherwise printed / paper records that are not covered in the retention by-law shall be disposed of after the retention time on the Record Control Table has been reached. Records that are listed in the Retention By-Law will be disposed of or stored as per the by-law states.

Any printed / paper copies of records or System drawings are to be stored in the upstairs storage room or in the Manager's or Compliance office at the Public Works building. Such records may be viewed at any time by all Operators. If a record is to leave the Clearview Works Building where it is stored a Record request form will be filled out, a copy of the record made, and the Compliance / QMS Coordinator or Manager must approve such request before the record leaves the building. A copied record is for information only and once it has left the Works building it is considered an uncontrolled record.



* The Record Request form is available in the Appendices section of this manual.

Manual Records

- Before final entry of all internal manual records the information will be put into approved QMS forms.
- The record title shall be clearly visible and legible.
- All manual records, whether it be notes or final entry shall be legible. Pencil or erasable marker shall not be used to record any records that pertain to measurements or tests done within the pumphouse or system.
- QMS records shall be filed by type and by date.
- QMS related water treatment and distribution records shall be stored and available at the Public Works building.
- QMS records shall be stored in such a manner as to prevent deterioration.
- All manual records shall show the name or initials of the recorder and the date (time if appropriate) the record was generated.

SCADA Records

- All the Water Systems are controlled by Programmable Logic Controllers (PLC). The PLC's send information, via wireless communication, back to the main SCADA in the Public Works Manager's Office. The information is stored for a short period on the SCADA computer and also sent to a "Historian" program. The information is stored in the Historian & Sequel Server Database for records. The records are backed up on the Township's server. The information will only be deleted manually. The records on the Historian can be converted in to grids or charts for viewing and report building.
- The PLC's are set up to store Free Cl₂ residuals on a second by second basis. Every 5 minutes it will calculate a minimum, maximum and average residual for the 5 minute collected data. This data is then transferred to the historian for records.
- The PLC's will also calculate and send a daily flow reading from each pumphouse.
- The historian records are viewed at minimum every 72 hrs. Any comments are made directly on the historian graphs.

Results of Internal / External audits and Management review meetings

Refer to Section 19 & 20 for audit results and management review records procedures.

Associated procedures & documents for referencing

- Doc. # 040 - Document Revision Request form
- Doc. # 041 & 042 - Document & Record Control Tables
- Doc. # 082 - Data Entry Procedure - General
- Doc. # 235 - 72 Hr. Data Review Procedure
- Doc. # 125 - Creating a Document Procedure



- Doc. # 110 - Record Request form
- Procedure By-Law 16-40
- Retention By-Law 16-10
- O. Reg. 170/03
- O. Reg. 128/04

6. Drinking Water System

The corporation of the Township of Clearview owns and operates 6 municipal water systems. Stayner, Creemore, New Lowell and Nottawa (McKean Subdivision) water systems are classified Large Municipal Residential. The other two Colling-Woodlands & Buckingham Woods are classified Small Municipal Residential.

The New Lowell water system is connected to the New Tecumseth pipeline which runs from Collingwood to Alliston. The town of New Lowell uses water from the “Pipeline”. The primary system for the “Pipeline” is owned and operated by the Town of Collingwood. The Town of New Tecumseth owns and operates the “Pipeline”. The treatment and delivery of water from this line is considered a critical upstream process and is monitored and tested continually. The town of New Lowell has three wells in operation to supply water for peak periods and emergency situations.

Details with regards to this connection can be found in the New Lowell Operation & Maintenance manual. Details for the arrangement between Clearview, New Tecumseth & Collingwood can be found in the New Tecumseth/Clearview Water Supply Agreement. Sampling of the upstream process can be found in Doc. # 124 Clearview Sample Taking Protocol.

In the other five water systems, there are no critical upstream or downstream processes relied upon to ensure the provision of safe drinking water. The groundwater sources are not under the direct influence of surface water.

Detailed descriptions of all systems including treatment processes and distribution system components are outlined in the system Operation & Maintenance manuals.

A process flow chart can be found on the SCADA computer screen by logging in and entering the System you wish to view. This screen will be kept up to date as changes are made.

General characteristics of the raw water supply for each system can be found in the Document titled “Raw water analysis”. For the Buckingham Woods raw water refer to the Report completed by Golder Associates Ltd. Doc. # 06-1112-500 Titled Windrose Estates Subdivision Water Supply Testing. It is dated June 2006. None of the Clearview production wells used in a water system are considered GUDI. Due to this, common event driven fluctuations, operational challenges and threats are not an issue for Clearview Operators.



The Operating Authority ensures that the description of the drinking water system is kept current as described in Section 5.1 QMS Document Control, Reviewing Documents.

Associated procedures & documents for referencing

- Doc. # 127 - Stand-by Power Procedure
- Doc. # 115 - Clearview Water Emergency & Contingency Plan
- Doc. # 044 - 049 - Operation & Maintenance Manuals
- Doc. # 166 -170 - Raw water analysis
- Report # 06-1112-500 Windrose Estates Subdivision Water Supply Testing
- Sept.1, 2008 New Tecumseth/Clearview Water Supply Agreement
- Doc. # 193 -198 - Water System Process Flow Charts
- Operational Plan Appendix (K) – Subject System Description Form

7. Risk Assessment

The Township of Clearview has established, implemented, and maintains this procedure to determine what potential hazards and critical control points exist in the Water Distribution and Supply Systems.

The Risk Assessment Team will consist of at minimum 3 members of the Operating Authority. At least one member of the risk assessment team must have successfully completed a Ministry of the Environment approved course for Risk Assessment. The QMS Rep. will select one trained member of the Operating Authority to become the team lead. Once a team lead has been identified he or she will take on the duties pertaining to this procedure. The remaining members will first be asked on a voluntary basis by the team lead. If there is not enough support through volunteers' then the risk assessment team lead will ask their manager to appoint the remaining members.

The reliability of equipment is covered in the scheduled maintenance and calibration schedules.

The Risk Assessment table contains a column labelled Control measures. This column provides a description of the redundancy of procedures and equipment to control hazards.

The process for hazard analysis includes an assessment of each process step and activity associated with the water system. Identifying hazards that are potentially present or possible at each process step and activity is also included. The hazards identification process will also consider applicable items from the "Potential Hazardous Events for Municipal Residential Drinking Water Systems" document published by the MECP.

Once hazards are identified, the next step is the determination of critical control points and high risks to the safety of drinking water safety.



This process involved a risk assessment by prioritizing hazards and identifying points where control may be exerted to eliminate or minimize hazards. The process flow chart in Appendix I – a, was used for this determination.

In addition to the use of the flow chart the risk assessment was performed by rating the likelihood, severity, detectability and capability of each hazard at each relevant process step or activity on a scale of 1 to 5. The values of each of these factors are added together to give a risk priority number. Based on a review of the overall risk values and the associated events, a threshold number of 11 was chosen. All events associated with risk values equal to or greater than the threshold number were considered a high risk to the safety of drinking water. Some of these risks are considered Critical Control Points. The risks where no control can be exerted are considered high risks and have contingency plans in place.

Likelihood is the probability/likelihood of a hazard or hazardous event occurring.

Severity is the potential impact to health or impact on operations if the risk is not controlled.

Detectability is a measure of the ability to detect the presence of certain hazards. Hazards which could be easily and quickly detected were given a low value. Hazards that are hard to detect or undetectable were given a high value. The risk becomes greater as appropriate responses cannot be taken to control or mitigate the risk.

Capability is the ability to respond to a hazardous event and inclusive of available resources; qualified staff, essential supplies and services (e.g. equipment, materials, consultants and contractors)

The rating system is defined in figure 7.1.



Figure 7.1 Risk Assessment rating table

Likelihood		Severity	
1	Rare – Requires exceptional circumstances to occur, less than once every 10 years.	1	Insignificant - Little operational disruption, no service interruption to customers or loss of available water supply.
2	Unlikely - Could occur at some point, once every 5-10 years.	2	Minor – Localized minor impact on small portion of population, easily managed operationally.
3	Possible - Will occur at some point, once per 5 years.	3	Moderate - Minor impact on large population managed operationally.
4	Likely – Likely to occur at some point, approx. once per year.	4	Major - Significant impact on population, difficult to manage.
5	Certain - Expected to occur in most circumstances, approx. once per month.	5	Catastrophic - Major impact on population, complete system failure, widespread service interruption to customers, loss of water supply and/or illness.
Detectability		Capability	
1	High - Immediately detectable, SCADA alarms.	1	Excellent – Excellent ability to respond in comparison to best practices, considering resources available. Easily handled inhouse with resources on hand.
2	Moderate – Indicated by local alarm or in-house lab results.	2	Very Good – Very good ability to respond, considering resources available. Handled inhouse with assistance of outside resources.
3	Detectable - Visually detectable, rounds or maintenance.	3	Good – Good ability to respond, considering resources available. Combination of inhouse and outside resources available.
4	Poor - Would not be detected until problem occurred. External lab results.	4	Fair – Fair ability to respond, considering resources available. Not able to be handled by staff, resources required available.
5	Undetectable - Cannot be detected under any circumstances.	5	Poor – Poor ability to respond considering resources available. Not able to be handled by staff, difficult to source required resources.

Appendix I has two parts. Appendix I – a, is a flow chart used to determine CCP’s. Appendix I – b, is a table that identifies the processes and hazards related to the water system that were identified. Also included in the table are the outcomes of the risk assessment, and the identification of which of these were identified as critical control points.

All procedures that establish, implement and maintain the critical conditions of hazards identified are listed in the Risk Assessment Table (Appendix I b).



If changes to any Operational Processes or Procedures are made the Risk Assessment Table will be reviewed by the QMS Rep. for any implications the change might have caused. If a change is required, it will be noted and discussed with the Risk Assessment Team. This will be scheduled by the QMS Rep. or the Manager.

Every three months the Risk Assessment team will review the risk assessment and ensure that the information remains current and valid. If possible, at least once annually the Risk Assessment team will include all Operators in the Risk Assessment review. This will be documented using the meeting sign in sheet.

Every 3 years the Risk Assessment team will conduct a new Risk Assessment. This will be documented by the meeting sign in sheet as well as the new Risk Assessment Table.

8. Risk Assessment Outcomes

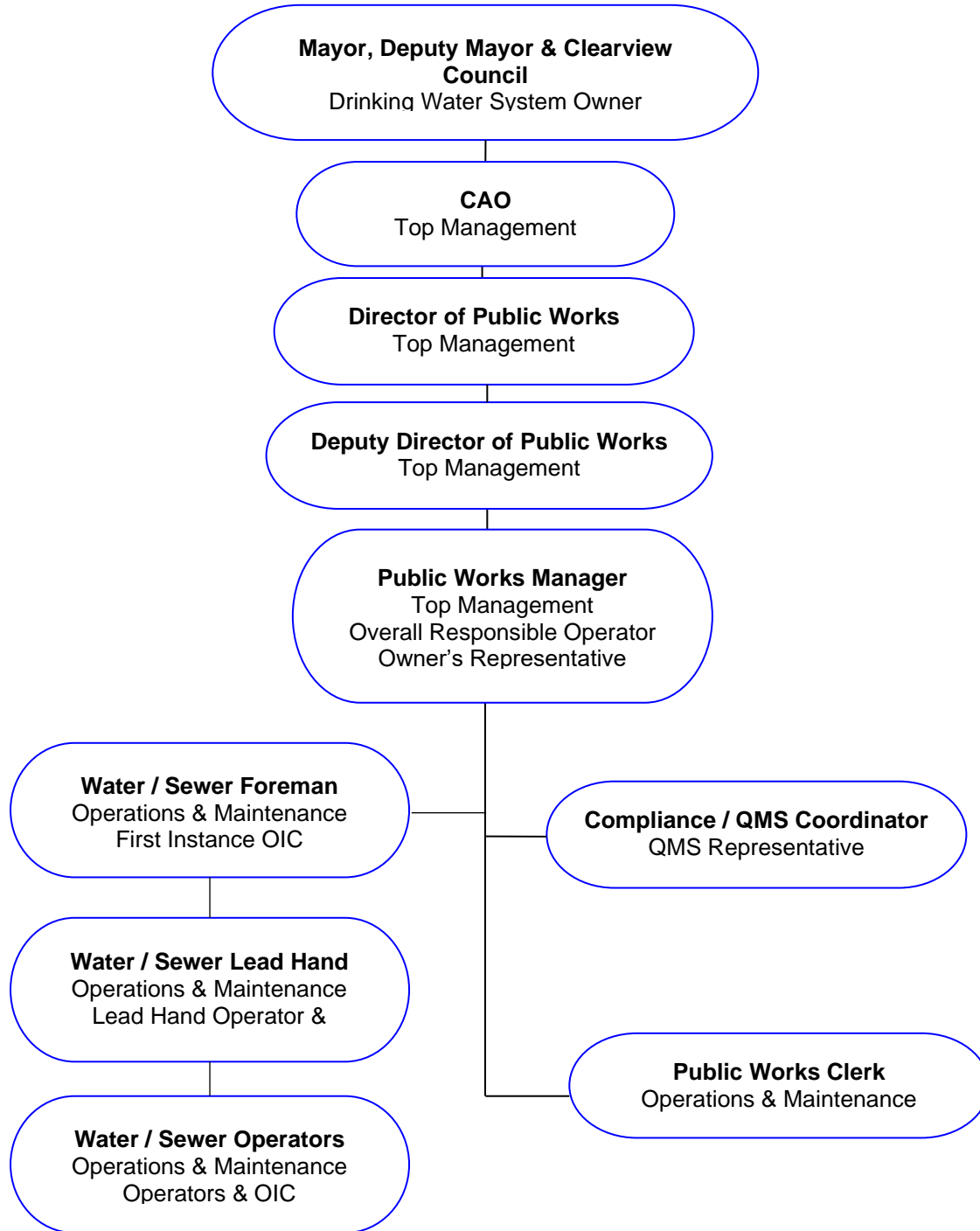
The outcomes from the risk assessment process are documented in Appendix I b – Risk Assessment Table. Critical control limits and control measures are identified in Appendix I b.



9. Human Resources

9.1 Organizational Structure

Township of Clearview Drinking Water Systems Organizational Chart





9.2 Roles, Responsibilities & Authorities

9.2.1 Clearview Council (Owner)

Clearview Council have the overall responsibility and authority to ensure that the Township of Clearview water works meet all legislation and regulatory requirements. They further have the responsibility and authority to allocate the necessary resources for the safe operation of the water works based upon the recommendations of the Operating Authority & Top Management.

Follow all QMS & Clearview Township policies / procedures.

9.2.2 CAO (Top Management)

The Chief Administrative Officer has the responsibility and authority to:

- Ensure operations are performed as per regulatory requirements.
- Undertake management reviews.
- Follow all QMS & Clearview Township policies / procedures.

9.2.3 Director of Public Works (Top Management)

The Director of Public Works, has the responsibility and authority to:

- Ensure operations within the water works are performed as per the DWQMS and regulatory requirements.
- Report on the performance & make recommendations regarding water department operations to the CAO and Council.
- Report on the performance of the drinking water systems to Clearview Council.
- Maintain provincial operating certificate at certification level of facility.
- Follow all QMS & Clearview Township policies / procedures.
- Monitor water quantity demand.
- Develop and implement operating budgets.
- Undertake management review.
- Infrastructure planning for current and future needs and communicates those requirements to the CAO & Council.
- Receive and communicate external complaints.

9.2.4 Deputy Director of Public Works (Top Management)

The Deputy Director of Public Works, has the responsibility and authority to:

- Perform Director's duties in his absence.



- Follow all QMS & Clearview Township policies / procedures.
- Develop and implement operating budgets.
- Undertake management review.
- Infrastructure planning for current and future needs and communicates those requirements to the Director, CAO & Council.
- Receive and communicate external complaints.

9.2.5 Public Works Manager (Top Management)

The Public Works Manager, as the ORO, has the responsibilities and authority to:

- Ensure operations within the water works are performed as per the DWQMS and regulatory requirements.
- Systems Overall Responsible Operator.
- Supervise water works operations.
- Develop and implement operating budgets.
- Make recommendations to the Director regarding water department operations and infrastructure replacement and renewal requirements.
- Perform Director's duties in his absence.
- Develop procedures & policies for operations / maintenance & emergency contingency.
- Maintain provincial operating certificate at certification level of facility.
- Follow all QMS & Clearview Township policies / procedures.
- Receive and communicate external complaints
- File & approve records.
- Undertake management review.

9.2.6 Water / Sewer Foreman

The Water / Sewer Foreman is responsible for:

- Ensure operations within the water works are performed as per the DWQMS and regulatory requirements.
- Supervise and schedule operations of water works operators.
- Provide input into the development of operating budgets.
- Make recommendations to the Manager regarding water department operations.
- On site supervision of special projects.
- Develop procedures & policies for operations / maintenance & emergency contingency.
- Maintain provincial operating certificate at certification level of facility.
- Follow all QMS & Clearview Township policies / procedures.
- Receive and communicate external complaints.
- Designated first instance Operator in Charge.
- Regularly communicate to the Manager.



- File & approve records.
- Undertake management review.
- Designated Operator in Charge.

9.2.7 Compliance / QMS Coordinator / QMS Representative

The Compliance / QMS Coordinator has the responsibilities and authority to:

- Ensure operations within the water works are performed as per the DWQMS and regulatory requirements.
- Develop procedures & policies for operations / maintenance & emergency contingency.
- Monitor water quality & demand.
- Maintain provincial operating certificate at certification level of facility.
- Follow all QMS & Clearview Township policies / procedures.
- File & approve records.
- Undertake management review.

The Compliance / QMS Coordinator is also the QMS Representative. The QMS Representative shall be responsible for:

- Delivering the QMS.
- Ensuring that processes needed for the QMS are established, implemented and maintained.
- Reporting to the Manager, Director and Township Council on the performance of the QMS and any need for improvements.
- Ensuring that the most current versions of documents required by the QMS are being used at all times.
- Ensuring that all personnel are aware of all current regulatory requirements that pertain to their duties within the operation of the drinking water system.
- Ensuring the promotion of awareness and effectiveness of the QMS throughout the operating authority.
- Ensure all operating authority is trained on in-house procedures and emergency response procedures as they pertain to their duties.

9.2.8 Water / Sewer Lead Hand Operator

The Water / Sewer Systems Lead Hand Operator is responsible for:

- On site supervision of special projects appointed by the Foreman.
- Supervise and schedule operations of water works operators in Foreman's absence.
- Help to ensure all policies and procedures are followed by all operators.
- Regularly communicate to the Foreman and Manager.
- File records.
- Designated Operator in Charge.



The Lead Hand will also be responsible for the following, as an Operator for the Township of Clearview water systems.

9.2.9 Water / Sewer Operator

All Water/ Sewer Operators are responsible for:

- Monitoring and maintaining processed water quality, the maintenance of treatment and the maintenance of distribution system including valves, hydrants & flushing.
- Comply with all relevant legislation and regulations, undertake activities at the request of the Director, Manager or Foreman.
- Follow all QMS & Clearview Township policies / procedures.
- Carry out duties as scheduled by the Director, Manager or Foreman.
- Carry out on call emergency duties as scheduled by the Director, Manager or Foreman.
- Hold an OIT certificate. Obtain as soon as possible and maintain provincial operator certification at minimum Level 1 Distribution & Supply.
- Receive and communicate external complaints.
- Regularly communicate to the Foreman.
- Designated Operator in Charge, when holding minimum Level 1 certificate.
- Familiar with all in-house procedures and emergency response procedures.

9.2.10 Public Works Clerk

The Public Works Clerk is responsible for:

- Receiving and communicating external complaints and appointments.
- Regularly communicating to the Director, Manager, Foreman, and Compliance / QMS Coordinator.
- Filing paper records.
- Data Entry.
- Follow all QMS & Clearview Township policies / procedures.

Communicating information of the Responsibilities and Organizational Chart throughout the Operating Authority will be done as part of the QMS training as outlined in Element 12. It will be reviewed and updated as necessary and during the Annual Management Reviews.

Associated procedure and documents for referencing

- CAO job description
- Director of Public Works job description
- Deputy Director of Public Works job description
- Public Works Manager job description



- Water / Sewer Foreman job description
- Water / Sewer Lead Hand Operator job description
- Water / Sewer Operator job description
- Public Works Clerk job description
- Compliance / QMS Coordinator job description

10. Competencies

Clearview Township adheres to its hiring policy for any new employee hiring. In order to meet ongoing changes to technology, software, requirements of O. Reg. 128/04 and Water Department processes, any certified operators or managers shall receive training as required by O. Reg. 128/04, as a minimum. Training records are maintained by the QMS Representative and Manager.

Listed in Section 9.2 Roles, Responsibilities & Authorities are the knowledge, skills, and responsibilities required as the Township of Clearview water systems operating authority.

All certified Operators are considered to be competent to perform duties that directly affect drinking water quality.

All water works employees required to perform internal audits for the Township of Clearview will have been trained in internal auditing. Refer to Element 19 for more on Internal Auditor requirements.

Through continual training operators are made aware of the relevance and importance of their duties and how they affect the provision of safe drinking water.

Associated procedure and documents for referencing

- Doc. # 014 In House Training form
- Township of Clearview recruitment & hiring policy
- O.Reg.128/04

11. Coverage

This procedure describes the coverage provided for the Township of Clearview Water Works. The owner will ensure that sufficient personnel meeting identified competencies are available for duties that directly affect drinking water quality.

11.1 On-Site Coverage



- The pumphouses are remote buildings located throughout Clearview. They are visually checked by a Township of Clearview certified water operator Tuesday's & Friday's at minimum. Remote locations that affect the drinking water system are covered in the Reservoir Inspection procedure.
- All distribution system maintenance is done by Clearview Township Water / Sewer Operators.
- All well work is to be performed by a licensed well technician.
- Certain processes within the pumphouse are remotely alarmed. When alarm conditions are met, a message is sent to all water operators' cell phones. It is the responsibility of the on-call operator to ensure that their phone is enabled to receive alarms when they are on-call.
- The Public Works Manager is the system overall responsible operator. The Water / Sewer Foreman assumes the ORO role in the Manager's absence.
- All appropriately certified Water / Sewer Operators are designated as Operator's in Charge.
- The main alarming is done through a program connected to SCADA. Refer to Section 16.3 Monitoring for further details.

11.2 After – hours / Weekend / Stat Holiday coverage

- The systems are covered during these times by a designated licensed Township operator. Designation is determined by the on-call schedule created by the Foreman. Under normal operations, each rotation starts Tuesday and concludes the following Tuesday.
- The drinking water system is monitored by call. Any abnormal conditions outside the pumphouses are routed to a call centre that in turn contacts the designated on-call operator.
- Certain processes within the pumphouse are remotely alarmed. When alarm conditions are met, a message is sent to the on-call operator.
- The on-call operator shall take the necessary action to investigate, address and report (if necessary) the alarm condition.
- The on-call operator shall be available to respond as soon as possible to any alarms or upset conditions.

11.3 Emergency Coverage

- Emergency coverage shall be provided by the Clearview Township Water / Sewer Operators.
- Contact information for emergency supplies or any specialized assistance is included in the list of essential supplies & services.
- Refer to Doc. # 128 O.R.O & O.I.C Designation procedure for Overall Responsible Operator & Operator in Charge designations.
- Reference is made in Article 8 of the collective bargaining agreement between the Township of Clearview and unionized operations staff with regards to strikes / lockouts.

Associated procedures & documents for referencing

- Doc. # 128 O.R.O & O.I.C Designation Policy
- Doc. # 018 Water Operator On-Call Schedule



- Collective bargaining agreement between Clearview Township & CUPE Local 1217

12. Communications

This procedure describes how the Township of Clearview top management communicates the QMS between the Owner, Operating Authority personnel, suppliers and the consumer.

12.1 Owner / Operating Authority personnel

The QMS Representative will report any development or changes to the QMS to the Owner as needed. The QMS Representative will also report results arising from Management Review meetings.

The QMS and associated procedures are communicated to all water works employees by the QMS Representative. It will be documented as the training is provided. This will pertain to any new full-time employee as well. Part time employees working with the Water / Sewer Dept. will be trained on the Elements of the Plan that will pertain to them as they carry out their duties.

After initial training, the QMS and associated procedures will be communicated to employees through training sessions and/or meetings as changes are made to the QMS. This will be done by the QMS Representative, Foreman or Manager and will be documented by training records and/or meeting sign in sheets.

Communication on an ongoing basis is encouraged through general discussions and scheduled meetings by the Director, Manager or Foreman. It is at this time that all staff are asked for their input on day-to-day operations of the water systems. Any questions or concerns that arise between meetings are brought to the Director, Manager or Foreman's attention and dealt with in a timely manner. Records of such discussions are noted on the meeting sign in sheets.

12.2 Consumers

The Township of Clearview has the Quality Policy posted in the foyer at the Municipal office and on its website under Municipal Services / Water and Sewer.

12.3 Suppliers

All essential suppliers are provided a statement from the Township informing them of our QMS and how it relates to them on an annual basis. If any changes to the QMS are made and they relate to suppliers, a new statement will be sent out for the effected suppliers. For a more detailed procedure refer to Section 13 Essential Supplies and Services.

Associated procedures & documents for referencing



- Doc. # 014 In House Training Form
- Doc. # 015 Meeting Sign-In Sheet
- Doc. # 161 – 164, 328, 351, 358 QMS supplier statements

13. Essential Supplies and Services

This procedure identifies the supplies and services deemed essential to the delivery of safe drinking water. It also identifies how to ensure the quality of the essential supplies and services that affect the quality of drinking water.

All laboratories conducting testing for the Township of Clearview must be accredited by the Ministry of Environment to conduct such tests.

A complete list of Essential Supplies and Services including contact information can be found in Appendix G of the Operational Plan.

All essential services and supplies are tagged with a quality level as seen in the list. There are 4 levels. Levels are used to determine the quality requirements needed for each supply or service. Quality Level details are listed in this section. For a supply or service to be accepted in the drinking water system it must meet the requirements for the quality level. A letter has been sent to each Supplier or Service on the list. This letter explains to each the Township requirements as listed below. A signed copy will be sent back to the Township accepting the terms. This will be considered acknowledgement they know and understand and agree to meet such terms. A new letter will be sent out annually to all contacts on the list. Any additions to the list will be provided with the letter and the above will apply.

Quality Level 1: All Chemical supply companies.

All process chemicals must meet applicable AWWA and ANSI standards. Proof of chemical product (SDS) must be provided upon delivery. For routine deliveries, such as Sodium Hypochlorite a water works employee may not be present. In that case the Bill of Lading will be left in the location where the chemical was unloaded. The Bill of Lading will have at minimum the following information...

- ✓ Chemical delivered
- ✓ Proof of NSF 60/ANSI Certification
- ✓ Amount delivered
- ✓ Date delivered
- ✓ Person making delivery

All other chemical deliveries will be accompanied with paperwork containing the same information as above.

To go along with the chemical information the Township of Clearview expects the following from any of its suppliers in Level 1:



- ✓ The supplier's employees receive regular TDG, WHMIS, workplace safety training and any other relevant training.
- ✓ Vehicles are equipped with appropriate safety and environmental gear in the event of a spill.
- ✓ Provide prompt and efficient service.
- ✓ Notify the Compliance / QMS Coordinator in any change of product prior to delivery.
- ✓ Ability to provide the service on short notice in emergency situations.
- ✓ Follow all applicable laws and regulations.

Any chemical used for water treatment that is delivered to Clearview Township will be verified before use by an Operator. Doc. # 206 Chemical Receiving Checklist will be used to verify the products minimum quality requirements. If a product does not meet the minimum quality requirements upon delivery the Operator will notify their Supervisor before use. The Supervisor will contact the supplier to correct problem before issuing further direction.

Quality Level 2: Licensed Professionals & Contractors

Quality Level 2 Suppliers & Services will consist of any licensed professionals or licensed contractors doing work for the Township. Professional Engineers, Hydrogeologists, licensed well drillers and technicians and any other licensed tradesman will fall into this level of quality expectations.

The Township of Clearview expects the following of any supplier or service in Level 2:

- ✓ Adhere to any codes of conduct their profession might require.
- ✓ While doing work for Clearview all professionals & tradesmen will make sure their license is in good standing with their respective licensing body.
- ✓ WSIB certified.
- ✓ All licensed contractors & professionals have received regular workplace safety training and any other relevant training.
- ✓ Provide prompt and efficient service.
- ✓ Ability to provide the service on short notice in emergency situations.
- ✓ Follow all applicable laws and regulations.

Quality Level 3: General Contractors & Emergency Services

Quality Level 3 Suppliers & Services will consist of any General Contractors that do work for the Township. Construction companies & any Emergency service providers listed will fall into this level of quality expectations.

The Township of Clearview expects the following of any supplier or service in Level 3:

- ✓ All workers have received regular workplace safety training and any other relevant training.
- ✓ All equipment used is in good working order and not a hazard to those around it.
- ✓ Any emergency service personnel are aware of all applicable legislations that might pertain to their duties.
- ✓ WSIB certified.
- ✓ Follow AWWA Standards when working on or around the distribution system.
- ✓ Provide prompt and efficient service.



- ✓ Ability to provide the service on short notice in emergency situations.
- ✓ Follow all applicable laws and regulations.

Quality Level 4: Manufacturers & Suppliers

Quality Level 4 Suppliers & Services will consist of any Manufacturers & Suppliers that Clearview Township purchases from.

The Township of Clearview expects the following of any supplier or service in Level 4:

- ✓ All supplied pressure pipe, fabricated fittings and other water system appurtenances shall be NSF 61 and NSF 372 approved and meet applicable AWWA Standards.
- ✓ Equipment supplied meets all applicable internal & external standards or rules. I.e. Electrical, NSF, or internal quality control etc.
- ✓ Supply all required documentation with delivery of supplies / equipment. I.e. O & M Manual.
- ✓ Proof of chemical product (SDS) must be provided upon delivery.
- ✓ Provide prompt and efficient service.
- ✓ Ability to provide the service on short notice in emergency situations.
- ✓ Follow all applicable laws and regulations.

Sequestering agents will be ordered by the Manager, Foreman or Lead Hand as chemical is needed. A water operator will meet the supplier at the delivery sites and provide assistance and guidance as needed.

The Essential Supplies and Services List and its contents will be updated at minimum once a calendar year. This will take place at general meetings with Operators. At this time, it will also be discussed, as a group, if any have not met purchasing or quality requirements. If a new supplier / service is used they will be added to the list by the Public Works Clerk, QMS Rep., Foreman or Manager.

A back-up supply of Sodium Hypochlorite (minimum 20 L) will be kept in the pumphouse at all times. Unless emergency situations prevent otherwise.

The Township Procurement By-law is used as the purchasing procedure for Clearview Township Water Works.

The Manager, Foreman & Operators are all responsible for the maintenance, instrumentation & distribution parts inventories.

In the event of an emergency or risk to the integrity of the water system. All Clearview Water / Sewer Operators will reference the O.R.O. procedure before purchasing supplies / services to protect the system.

Associated procedures & documents for referencing

- Doc. # 161 -164, 328, 351, 358 Supplier Statements
- Township of Clearview Procurement By-law 17-20
- Doc. # 128 O.R.O & O.I.C Designation Procedure



- Doc. # 206 Chemical Receiving Checklist

14. Review & Provision of Infrastructure

The Township of Clearview maintains a rolling infrastructure maintenance and replacement program. The program (Life Cycle Costing) consists of two sections. One involving “water mains” and one involving “water plants”.

Considering potential system improvements that would help mitigate risks documented in Doc. # 144 Risk Assessment Table, the Director and/or Manager of Public Works shall submit a six-year capital budget forecast report annually for any infrastructure work that is being proposed. This report will serve as the basis for the program.

The report shall include the following...

Buildings, storage, and distribution:

- New infrastructure required in the upcoming year (due to regulation or unforeseen circumstances).
- Recommended infrastructure maintenance for the upcoming fiscal year.
- Recommended infrastructure rehabilitation or renewal for the upcoming fiscal year.
- Recommended infrastructure upgrading or replacement for the upcoming fiscal year.

Any infrastructure required due to growth of the system or storage is submitted by the Director of Public Works.

Machinery, equipment, and software:

- New machinery, equipment, PLC’s, and software required in the upcoming fiscal year.
- Planned and unplanned machinery and equipment maintenance and replacement parts for the upcoming fiscal year.

The budget shall be presented to the Treasurer for comment, and then forwarded to Council during budget deliberations. The Director and/or Manager of Public Works may be called upon to provide additional details.

Upon approval of the budget, the Director of Public Works and Public Works Manager shall begin the process of implementing the approved recommendations over the course of the fiscal year.

Associated procedures & documents for referencing

- Doc. # 144 Risk Assessment Table



15. Infrastructure Maintenance, Rehabilitation & Renewal

Planned Maintenance: buildings and distribution system

New construction or planned work to be done to the water system shall be in conjunction / coordination with other operation departments whenever practical (i.e., Roads) Other planned maintenance including spring and fall hydrant flushing, and valve exercising will be scheduled into work operations by the Water / Sewer Foreman.

All new construction and work to existing structures shall comply with all relevant legislation and regulations. Typically, major projects are contracted out in accordance with the Township of Clearview policies and procedures. The consulting engineering company, Director, Manager and Foreman shall ensure that contracted work is monitored as appropriate.

If the planned maintenance can be conducted by the Township of Clearview personnel, then the Manager or Foreman shall direct personnel to perform the work and will fill out applicable paperwork to comply with legislation and regulations.

All water meter installations are carried out by Clearview Water /Sewer Operators who hold a water meter installation license.

Unplanned maintenance: distribution system

Unplanned maintenance typically consists of main leaks / breaks, valve, hydrant and meter repairs or replacements. This work is completed by Township personnel. All operational work must be conducted by a certified operator as required by O. Reg. 128/04. If there is a need for this maintenance to be added to the weekly scheduled tasks, then a planned maintenance revision form will be completed and submitted to the Water / Sewer Foreman. Refer to Doc. # 203 for further detail.

Planned Maintenance: Machinery and equipment

Planned maintenance includes visual inspections, lubrication, fluid changes and other activities as recommended by manufacturer. Planned maintenance conducted by Water System Operators shall be scheduled by the Foreman. A planned maintenance schedule is maintained by the Foreman. The schedule is done through CityWide Maintenance Manager. Details of the work completed shall be recorded in the Pumphouse Logbooks. Refer to Doc. # 203 Weekly Scheduled Tasks Procedure for more details. If a revision is to be made to any scheduled maintenance items, it will be documented on the "Planned maintenance revision form".

Unplanned Maintenance: Machinery and equipment – Water Treatment



The Operators are responsible for the maintenance of the machinery and equipment associated with the pumphouse / reservoir facility. The water operators will report any replacement parts needed to conduct maintenance to the Foreman or Manager. They will in turn do the ordering as needed. Any unplanned maintenance that cannot be carried out by an Operator will be contracted out to one of the approved contractors on the Essential Supplies and Services list. The Operator will refer to the Designation of O.R.O & O.I.C procedure for instruction on contacting such personnel.

All unplanned maintenance work shall be noted in the corresponding pumphouse maintenance logbook and will be reported to the Foreman or Manager. If there is a need for this maintenance to be added to the weekly scheduled tasks, then a planned maintenance revision form will be completed and submitted to the QMS Rep. Refer to Doc. # 203 for further detail.

Planned & unplanned maintenance: Computers, software, SCADA

The Township of Clearview has an internal IT support person. They shall be responsible for any maintenance or upgrades needed to the computer systems. The SCADA system is maintained by Township staff along with the necessary industry specialists.

The Maintenance, Rehabilitation and Renewal program will be reviewed, at minimum, annually by the Director, Manager and Foreman. By reviewing the planned maintenance revision form during the program review the Director, Manager and Foreman can monitor the effectiveness of the schedule. The program will also be included in Management Review meetings. Any changes required will be made on an ongoing basis to ensure the integrity of the system stays intact.

Associated procedures & documents for referencing

- Doc. # 165 Planned Maintenance Revision Form
- Doc. # 128 Operator In Charge & O.R.O Policy
- Doc. # 203 Weekly Scheduled Tasks procedure
- Water / Sewer Dept. Work records
- O. Reg. 128/04

16. Sampling, Testing & Monitoring

This procedure describes the sampling and monitoring activities for the Township of Clearview Water Systems. All sampling is in accordance with O. Reg. 170/03. Any additional sampling will be conducted as per the Manager, Foreman or Compliance Coordinator's direction. Sampling procedures are detailed further in Doc. # 124 Clearview Sample Taking Protocol.



There is only one relevant upstream process that takes place within Clearview Township's Water Systems. This process is involved with the New Lowell water system. Reference is made to this process in Section 6 of this plan.

16.1 Sampling general

- All in house samples taken are recorded on the corresponding test sheet.
- An annual summary of the sampling and testing results are in the Annual Report. Council is notified of the Annual Reports' availability during a subsequent meeting.
- All production well monitoring is done with the use of an airline and compressor, handheld level monitor or an inline level logger.
- All Observation well monitoring is done with the use of a hand level monitor or an inline level logger.
- Refer to the Sample Taking Protocol for details on how to take Bacteriological & Chem. / Physical samples.
- Weekly microbiological samples are to be picked up by the laboratory. They will be made ready for transportation by packing them according to the Sample Taking Protocol.
- Bacteriological & Chemical / Physical sampling summaries for each water system are maintained by the QMS Rep.

16.2 Sampling schedule

For a complete sampling schedule including sample types, frequencies and quality targets refer to the Clearview Sample Taking Protocol.

16.3 Monitoring

SCADA

The SCADA system is designed to monitor process parameters in the pumphouse and is the primary source for data.

- Free chlorine residuals of treated water entering the distribution system are monitored continuously and data logged every 5 minutes. Information logged is saved on a data base program called "Historian".
- Daily water flows are recorded daily and saved in the data base program called "Historian".
- The daily water flows and free chlorine residuals monitored through SCADA & Historian are examined by Licensed Operators within 72 hours after tests are conducted as per O.Reg.170/03, section 6-5(1),3.
- Operators may adjust processes affecting water quality based upon the information and data provided by the SCADA.
- Any adjustments made to process parameters shall be recorded in the Pumphouse Logbook.
- All parameters have alarm High & Low set points. The alarms all go through the SCADA and are then sent by the alarm program as text messages to programmed locations.



Visual

An operator shall conduct a visual inspection (“rounds”) of the pumphouse on a weekly basis. Results shall be recorded on the Weekly Reservoir Inspection Sheet. Any unusual conditions will be noted in the pumphouse logbook and reported to the Foreman or Manager.

16.4 Challenging conditions

Distribution ends: Some sampling locations are located at dead ends of the distribution system. At least one of these spots will be sampled for Microbiological testing each week. At which time a free chlorine residual will be taken.

Following water main repairs: To ensure water quality, refer to QMS Document # 121 “Water-main Break / Repair procedure”.

Associated procedures & documents for referencing

- Doc. # 124 Clearview Sample Taking Protocol
- Doc. # 134 – 142 Pumphouse Logbooks
- Doc. # 126 Sensaphone and Analyzer Alarm Setpoints
- Doc. # 031 – 039 Pumphouse Log Sheets
- Doc. # 43, 62-67, 81 Weekly Reservoir Inspection Sheet
- Doc. # 121 Watermain Break / Repair Procedure
- Doc. # 347 Watermain Repair Form
- O.Reg. 170/03
- O.Reg. 169/03 ODWS
- Microbiological chain of custody forms

17. Measurement & Recording Equipment Calibration & Maintenance

17.1 Calibration

On-line chlorine analyzers shall be calibrated at the frequency required by the manufacturer and using the procedure “Depolox 3 Plus Residual Analyzer Calibration & Maintenance”. Results of these calibrations shall be recorded in the Pumphouse Logbook.

The portable Cl₂ test kits will be calibrated every 3 months using the method specified by the manufacturer. All results will be recorded on the Handheld Cl₂ Calibration sheet.

The Handheld Turbidimeter test kits will be calibrated every 3 months using the method specified by the manufacturer. A record that this has been completed will be recorded on the turbidimeter.



Flow meters shall be verified and calibrated, if necessary, as per the CityWide Maintenance Manager PM Events schedule. Records of the flow meter testing and calibration shall be retained in the FileHold records management system.

Reservoir level sensors that are used for CT calculation will be verified and calibrated, if necessary, as per the CityWide Maintenance Manager PM Events schedule. Records of the level sensor testing, and calibration shall be retained in the FileHold records management system.

Pressure transmitters used for monitoring critical control limits are calibrated by a qualified service representative as required by the manufacturer. Records of the pressure transmitter calibrations will be retained in the FileHold records management system

For calibration and maintenance schedules refer to the CityWide Maintenance Manager PM Events schedule.

Associated procedures & documents for referencing

- Doc. # 013 Handheld Cl₂ Calibration Form
- Doc. # 114 Depolox 3 Plus Residual Analyzer Calibration & Maintenance Procedure
- Doc. # 100 Pocket Cl₂ Analyzer Calibration Procedure
- Doc. # 101 HACH 2100P Turbidimeter Calibration Procedure
- Doc. # 134 – 142 Pumphouse Logbooks
- Doc. 380 Reservoir Level Sensor Verification / Calibration Form
- CityWide – Maintenance Manager Software Program

18. Emergency Management

Clearview Water Emergency / Contingency Plan is intended for normal day to day operations carried out by the Operating Authority. The Township has a main plan that encompasses the entire corporation. The Clearview Township main plan is intended for distinct arrangements and procedures beyond the normal, day to day operations carried out by the Operating Authority. If an emergency develops beyond the normal day to day operations the O.R.O. will refer to the main Township plan for extraordinary arrangements and measures.

A complete list of potential emergency situations and response plans is not included in this Operational Plan but can be found in the Clearview Water Emergency / Contingency Plan.

The Clearview Water Emergency / Contingency Plans are to be kept in the Water dept. vehicles as well as in the Public Works Manager's office. On an annual basis all Operators, the Foreman and the Manager will review the Emergency / Contingency Plan. All procedures within will be reviewed by water works employees. This exercise will act as training for all involved. The method used in this training will generally be walk through drills. Documentation of this is recorded on the in-house training forms.



Mandatory training is required for all new full-time staff on contents of the Operational Plan and the Emergency / Contingency Plan. A sign off sheet will document that the new employee has read and understands the content of both plans. Any changes to the Emergency plans will be communicated to staff during meetings, as required.

All records of responses to emergencies and onsite test results will be noted in the Pumphouse logbook by the responding Operator.

Associated procedures & documents for referencing

- Doc. # 014 In House Training Form
- Doc. # 115 Clearview Water Emergency / Contingency Plan
- Doc. # 134 – 142 Pumphouse Logbooks

19. Internal Audits

Internal audits are conducted annually to ensure that the QMS conforms to the requirements of the Township of Clearview Operational Plan and the DWQMS. These requirements include ensuring that the QMS has been effectively implemented and properly maintained. Internal audits will be undertaken by trained Water Works employees. There are three different types of internal audits of which the auditor may perform. Conformant, Performance or Process which are explained further in section 19.2.4.

19.1 Audits conducted by a third party

19.1.1 Auditors

External audits will be conducted by a Ministry approved auditor. The external auditor will conform to his / her own audit procedure.

19.1.2 External audit schedule

Annual external audits will follow the schedule laid out by the MECP as follows...

- In the first year following the year in which the certificate was issued and every third year thereafter, the accreditation body will undertake a surveillance audit.
- In the second year following the year in which the certificate was issued and every third year thereafter, the accreditation body will undertake a surveillance audit.
- In the third year following the year in which the certificate was issued and every third year thereafter, the accreditation body will undertake a re-accreditation audit.



External audit schedules are to be presented to the QMS Representative and discussed with the Manager for approval prior to conducting the audit.

19.1.3 Reporting the results

The auditor shall submit a report on the completed audit to the QMS Representative.

19.1.4 Corrective Actions

Upon review of the audit report the QMS Representative will issue all necessary corrective actions and action item requests. The QMS Rep. will also be responsible for issuing the actions to the appropriate staff and following up to make sure they are completed.

Major & Minor non-conformances that apply to the Operational Plan will be corrected in a timely fashion and will be noted on the Record of Revision form. All other non-conformances will require corrective actions to be taken and noted using the Corrective Action Request form. All Opportunities for Improvement (OFI) noted in the audit report will be assigned to the appropriate person responsible for that area for assessment and recorded using the Action Item Request form.

19.2 Audits conducted by the Township of Clearview

19.2.1 Auditors

All internal auditors must have successfully completed a Ministry of the Environment approved course for internal auditing.

The Internal Auditor will be appointed by the QMS Representative.

19.2.2 Internal audit schedule

Internal audits are scheduled throughout the year as the auditor sees fit. The audits are scheduled by water system. The auditor will audit on a system-to-system basis following the internal audit schedule. The first year the QMS was put in place (2009) a conformant audit was performed. A conformant audit will be completed on all elements that have been affected by significant changes with the Standard after they have been incorporated in the QMS. All other audits will be performance or process audits unless otherwise decided by the QMS Representative.

The audit schedule is developed and presented to the QMS Representative and discussed with the Manager and/or Foreman at least one month prior to an audit by the appointed internal auditor.

An Audit scheduling form can be found in the Appendices section of the Operational Plan.



There will be no internal audits scheduled for the months of June, July or August.

When process audits are being performed, the QMS Representative will use the Process Audit Matrix to ensure that each element of the standard is audited at least once during a three-year period.

19.2.3 Audit Planning

The auditor will use the appropriate documents from Appendix F for the type and scope of the audit being conducted as a standard guideline when preparing for an audit.

19.2.4 Conducting the Audit

The auditor shall conduct an audit in accordance with this procedure to determine how consistently the Operating Authority applies its own system and how well it conforms to the Drinking Water Quality Management Standard. Three different types of internal audits may be performed: Conformant, Performance and Process.

Conformant Audits:

In conformant audits the auditor will use App. F (a). The purpose of doing a conformant style audit is to ensure that the Operational Plan has all the requirements of the Drinking Water Quality Management Standard. Past conformant audits may be taken into consideration at this point. By reviewing previous audit reports the auditor will be able to see areas where in the past the QMS and Operational Plan required attention. The internal auditor will check for changes made due to previous audit reports and this will act as an indicator of continual improvement.

Performance Audits:

In performance audits the auditor will use App. F (b). The purpose of doing a performance style audit is more to see if processes & procedures are being followed and how well the QMS is working from a performance standpoint. The performance audit is also a good tool to ensure everyone involved in the QMS has a good knowledge of their roles, responsibilities, and procedures they are involved with. The performance audit allows the auditor a better chance to observe activities, review records and interview more personnel. By reviewing previous performance audit reports and conducting the exercises that are in App. F (b) the auditor will be able to assess the areas that could use improvement within the QMS. The internal auditor will check for changes made due to previous audit reports and this will act as an indicator of continual improvement.

Process Audits:

In process audits the auditor will use App. F (c). The purpose of doing a process style audit is to evaluate the effectiveness of the process being examined. It is a highly focused inspection that examines the resources used to produce the desired output. During a process audit, the inputs for each task; materials, equipment,



personnel, procedures etc. are assessed within the context of the QMS. A process audit is beneficial to the QMS by evaluating how processes flow, their control, risk, and the achievement of objectives. It allows the auditor to observe activities, review records and interview personnel who perform the task. By reviewing previous audit reports and conducting the exercises that are in App. F (c) the auditor will be able to assess the areas that could use improvement within the QMS. The internal auditor will check for changes made due to previous audit reports and this will act as an indicator of continual improvement.

For any of the above audits conducted, the auditor will also include any of the following that have occurred subsequent to the audit:

- Historical responses taken to address corrective action requests made.
- Changes in the Operational Plan as noted on the "Record of Revision form.
- The results of any management review undertaken in accordance with element 20 of the Operational Plan.
- Any changes to the documentation and implementation of the QMS.

19.2.5 Reporting the Results

The auditor shall submit a report on the completed internal audit to the QMS Representative. The method used for audit reporting is formatted in terms of Observations, Opportunity for Improvement, Major non-conformances, and Minor non-conformances. The internal auditor will use the Internal Audit Summary of Findings form to report the results.

The report shall include any requirement for corrective actions to address gaps between the DWQMS and how the QMS is written and implemented. Corrective actions shall be communicated to the QMS Representative and shall be included as part of Management Review input. To ensure Corrective Actions are completed in a timely manner the Internal Auditor and QMS Rep. will set a meeting date no later than 1 month after report is given. At this meeting, all required corrective actions will be discussed.

19.2.6 Corrective Actions

Upon review of the audit report the QMS Representative will issue all necessary corrective actions and action item requests. The QMS Rep. will also be responsible for issuing the actions to the appropriate staff and following up to make sure they are completed.

Major & Minor non-conformances that apply to the Operational Plan will be corrected in a timely fashion and will be noted on the Record of Revision form. All other non-conformances will require corrective actions to be taken and noted using the Corrective Action Request form. All Opportunities for Improvement (OFI) noted in the audit report will be assigned to the appropriate person responsible for that area for assessment and recorded using the Action Item Request form.

19.2.7 Recording the Results



Once the audit is completed all results and associated documents will be put into electronic form and stored in the Township computer network. A completed paper copy will be stored in the DWQMS Binder labeled "Audit Records". Results will be retained and stored as per the Township's Records Retention By-Law.

Associated procedures & documents for referencing

- Operational Plan Appendix C(a) – Doc. # 109 Corrective Action Request form
- Operational Plan Appendix C(b) – Doc. # 377 Action Item Request form
- Operational Plan Appendix E(a) – Doc. # 092 Internal Audit Schedule form
- Operational Plan Appendix E(b) – Doc. # 374 Process Audit Matrix
- Operational Plan Appendix F(a) – Doc. # 093 Internal Audit Report form (compliance)
- Operational Plan Appendix F(b) – Doc. # 259 Internal Audit Checklist (performance)
- Operational Plan Appendix F(c) – Doc. # 360 Process Audit Form (process)
- Operational Plan Appendix F(d) – Doc. # 325 Internal Audit Summary of Findings
- Operational plan – Record of revisions page
- Retention By-Law 16-10

20. Management Review

This procedure defines the Management Review process to ensure the continuing suitability, adequacy, and effectiveness of the QMS.

20.1 Review Frequency

Management reviews shall be conducted at least once every calendar year.

20.2 Review Participants

The Management Review is convened and scheduled by the QMS Representative. Those required but not limited to be in attendance for Management Review are as follows:

- CAO
- Director of Public Works
- Deputy Director of Public Works
- Public Works Manager
- Water / Sewer Foreman
- QMS Representative

20.3 Review Input



The review meeting chairperson shall discuss information and data concerning the following categories during the review.

- incidents of regulatory non – compliance.
- incidents of adverse drinking water tests.
- deviations from identified critical control limits and actions taken.
- results of any internal or external audits.
- results of any relevant emergency responses or tests.
- operational performance and water quality trends.
- changes in resource requirements, infrastructure, process, personnel, Drinking Water Quality Management Standard, or regulations that could affect the QMS.
- consumer feedback.
- any resources needed to maintain the QMS
- a summary of the effectiveness of the Maintenance, Rehabilitation and Renewal program.
- the results of the infrastructure review.
- Operational Plan currency, content, and updates.
- staff comments & suggestions.
- the effectiveness of the risk assessment process.
- best management practices
- potential non-conformities
- follow-up on action items from previous management reviews.
- status of action items identified between reviews.

20.4 Review Process

The Management Review shall be a planned event. A minimum 2 hrs. shall be set aside for all participants to ensure a thorough review of the QMS is conducted. For organizational purposes the QMS Rep. will supply the Foreman, Manager and Director with Doc. # 023 DWQMS Management Review Checklist prior to the Management Review.

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

The QMS Representative shall make note of any changes or actions required during the review.

20.5 Review Output

A list of changes required to be made to procedures or other QMS based documentation.

A list of “action” items will be noted during the time of review by the QMS Rep. All action items will be assigned to an individual(s) for completion by the Director, Manager, Foreman or QMS Representative. The



actions will be assigned a timeline for completion. An Action Item Request form will be completed for each item and used to track and record the results.

Recommendations for any human or financial resources needed for maintenance or improvement of the QMS.

Upon completion of the annual Management Review the QMS Representative will put together a report of the review. This report will be taken to Council for information.

Minutes of management review shall be maintained by the QMS Representative. These minutes shall include the date and time of the review activity and the name of participants and attendees. The minutes will be kept on file by the QMS Representative and will be made available to council upon request.

Associated procedures & documents for referencing

- Doc. # 009 Meeting agenda template
- Doc. # 015 Meeting sign in sheet
- Doc. # 023 DWQMS Management Review Checklist
- Doc. # 377 Action Item Request form

21. Continual Improvement

The Township of Clearview will establish and maintain a Drinking Water Quality Management System that will be regularly reviewed, improved, and upgraded by management and employees involved in the supply of drinking water.

When appropriate, the Township of Clearview staff will modify/update adjust processes and procedures (while remaining in compliance with MECP regulations) to improve operations and customer satisfaction.

Corrective Actions will be used to identify and correct processes and procedures that have failed. If an incident or breakdown in procedure should occur the Operator that identified the issue, along with the Compliance / QMS Coordinator, will use Doc. # 109 Corrective Action Report (CAR) form to record the incident and notify the Manager or Foreman. The Manager or Foreman will determine a remedy and direct staff to correct the problem and improve operational efficiency. A future preventative action plan will be formulated and implemented. After a sufficient amount of time, the effectiveness of the corrective and preventative actions will be reviewed by the Manager or Foreman. The Corrective Action Report forms can be found in the Foreman's office.

Best management practices, including those published by the MECP, will be reviewed and discussed annually as part of the Management Review Meeting.



There are many instances where Opportunities for Improvement (OFI) can be identified. The places they may arise from include internal and external audits, management review and risk assessment review meetings, and staff suggestions.

Potential non-conformities can be identified at any time. If an Operator feels that there should be an addition to, modification of, or change in the frequency to an item's preventative maintenance schedule that would eliminate the occurrence of a potential non-conformity, they can request a change by completing Doc. # 165 Planned Maintenance Revision Form and submitting it to the Foreman. An opportunity to identify potential non-conformities is also available at Risk Assessment Review meetings and Management Review Meetings.

Best Management Practices, OFI's and Preventive Actions that have been identified will be recorded, reviewed, assigned, and evaluated by the Manager, Foreman or Compliance/QMS Coordinator using Doc. # 377 Action Item Request (AIR) form. This form will also be used to track and evaluate the effectiveness of any actions that have been taken.

The QMS Representative will maintain an Action Item Tracking spreadsheet to track the status of open Corrective Action Reports and Action Item Requests. After a report has been closed, the line item on the "open" tracking spreadsheet will be moved to the "closed" section of the tracking spreadsheet. The closed report will then be filed in FileHold.

Associated procedures & documents for referencing

- Doc. # 109 – Corrective Action Report form
- Doc. # 165 – Planned Maintenance Revision Form
- Doc. # 377 – Action Item Request form
- Action Items Tracking Spreadsheet

OPERATIONAL PLAN

RECORD OF REVISIONS

Revision #	Revision date	Revised Section	Details of revision	Revision made by
001	24-Feb-2009	All	Applied all required actions required from the internal audit. See the internal audit report and summary. Record is dated Feb. 24, 2009	TP
002	12-Mar-2009	All	Changed Creemore Plan to Clearview Plan. Decided to create one master plan and make reference to the different systems where they differ in operations.	TP
003	28-Apr-2009	# 5	Mike Rawn suggested we change the word "destroy" to "dispose". He feels it is less stringent using the word dispose.	TP
004	5-May-2009		The following revisions are a result of the Apr. 6, 2009 QMS Team meeting...	TP
		# 1 & 6	Change wording: McKean Sub. From a small system to a large system.	
		# 6	Added reference to the three remaining wells in NL water system description in Paragraph 2.	
		# 6	Added reference to the New Tec. Water line in the upstream processes.	
		# 6	Clarified where to find Raw Water Analysis reports.	
		# 9	Changed wording in all responsibilities from "Follow Clearview Township policies" to "Follow all QMS & Clearview Township policies / procedures".	
		# 13	Added a requirement for quality level 1 & 4 suppliers to provide MSDS.	
		# 13	Added a requirement to all quality levels "Follow all QMS & Clearview Township policies / procedures"	
		# 13	Quality Level 1: Take out the requirement for suppliers vehicles to be equipped with the appropriate safety gear in the event of a spill.	
		# 13	Added to chemical suppliers requirements there product must meet NSF 60	
		# 14	Changed description of "Life Cycle Costing program" to include both sheets. Water Mains & Water Plants	
		# 15	Added meter installer licenses required to install meters.	
		# 15	Unplanned maintenance: Added that operators will reference the O.R.O. procedure before contacting a contractor.	
		# 16	Added a detailed description making reference to the Clearview Contingency main plan.	
		# 13	Added a requirement in Quality Levels 2 & 3 to be "WSIB certified."	

004	2-Jun-2009	# 3	Took out the required signature in the Endorsement section. Created Appendix J for Top Management signatures. Council Resolution will be there endorsement	TP
005	2-Jun-2009	All	Where reference is made to Mayor, Deputy Mayor & Council, change wording to read "Clearview Council". This term refers to all of the above.	TP
		# 1	Change "Act on behalf of the owner" to Clearview Council are the owners and act on behalf of Clearview Township.	TP
		# 9	Remove Public Works Clerk from the Organizational Structure.	
		# 9	Add "In House Counsel" to the CAO's role	
		# 14	Machinery, Equipment & Software: Replace computers with PLC's. Mike does not plan for replacement of computers only PLC's in pumphouses.	
006	16-Jun-2009	# 7	Revised Risk Assessment procedure. Changed "Hazardous events" to "Risk to safety of drinking water"	TP
007	13-Aug-2009	# 21	Added a Corrective Action procedure for Operational Processes and Procedures	TP
008	16-Oct-2009	# 6	Revised the event driven fluctuations and operational challenges paragraph.	TP
	16-Oct-2009	# 19	Added Sec. 19 & 27 Recording Audit Results.	TP
	16-Oct-2009	# 20	Added three items for Management Review.	TP
			See External Audit Report CAR - 107 Dated Oct. 15, 2009.	
	16-Oct-2009	# 15	Added references to Doc. # 203 & where records of unplanned maintenance be documented. Took out "Date Book for Operators" Doc. 203 replaces it.	TP
009	11-Nov-2009	# 13	Added Chemical Verification Procedure per Audit Report Comment # 5, Oct. 15/09 & QMS Team Meeting discussion.	TP
010	25-Jan-2010	# 5.3	Updated to include SCADA Records	MR/TP
		# 11.1	Update on-site Coverage to reflect the change from every day visits to 3 times/week	
		# 11.1	Updated the alarming procedure. No longer use pager.	MR/TP
		# 11.2	Updated the alarming procedure. No longer use pager.	MR/TP
		# 16.3	Updated to include SCADA and Historian.	MR/TP
		# 16.3	Updated the visual rounds to weekly visits instead on daily.	MR/TP
011	26-Jan-2010	# 7	Added to procedure to include review of Risk Table if Operational Processes or Procedures are changed. Also updated review from once a year to every three months	TP
	26-Jan-2010	# 17.1	Added procedure for calibration of Pressure Transmitters	TP
012	2-Jun-2010	# 19.2.2	Changed date from January to July to allow auditor more time to schedule audits.	TP
013	15-Feb-2011	# 19	Updated internal audit procedure to include performance & conformant audits	TP

013	15-Feb-2011	# 2	Revised Policy to match copies in Town Hall & Works Bldg.	TP
013	15-Feb-2011	# 20	Changed mandatory req't of council to be at Management Review meeting	TP
013	15-Feb-2011	# 11	Updated coverage in 11.1. Only scheduled visits are Tue & Fri.	TP
014	12-Jul-2011	All Plan	Entire plan was endorsed by new council - July 11, 2011	TP
014	12-Jul-2011	# 3	Added required documents to be endorsed upon election of new officials	TP
014	12-Jul-2011	19.2.5	Added requirement for internal auditor to follow up with CAR's from audit report	TP
015	19-Mar-2013	All Plan	Updated all sections to reflect new structure. Replaced Superintendent with General Manager and deleted Director.	TP
015	19-Mar-2013	All Plan	Updated responsibilities in all sections where General Manager was involved with day to day operations. Revised with Managers responsibilities.	TP
016	16-Dec-2013	# 2	Update to reflect date the Policy was endorsed by new council	TP
017	13-Jan-2014	# 5	Update to include review of the Document Control Table every 6 months	TP
018	27-Jan-2014	# 16	Added referencer to 72 hour review of data. As per OFI from External Audit	TP
019	2-Dec-2015	# 2	Update Policy Statement & Operational Plan Approval Dates	TP
020	15-Jun-2016	All Plan	Updated all sections to reflect addition of Compliance / QMS Coordinator position. Transfer of QMS Representative roll from Manager.	SS
		# 11.1	Updated coverage in 11.1. All water operators issued cell phones.	SS
		# 16.1	Revised as more than one site now has in line level loggers	SS
021	2-Nov-2017	All Plan	Removed reference to WaterTrax Updated By-Law references	SS
		# 5.3	Removed Sensaphone	SS
		# 5.3	Replaced General Manager with Compliance / QMS Coordinator	SS
		# 7	Added reference to MOECC Potential Hazards List	SS
		# 12.1	Removed references to initial system creation	SS
		# 13	Quality Level 1: Replaced General Manager with Compliance / QMS Coordinator	SS
		# 14	Added reference to Doc. # 144 Risk Assessment Table	SS
		# 17.1	Removed brand specific reference "Hach" for Cl ₂ test Kits	SS
		# 19.2.2	Change to all elements covered over 3 years and added process audits	SS
		# 19.2.4	Added process audits	SS
		# 19.2.7	Changed retention time to as per Township Records Retention By-Law	SS
		# 20.3	Risk Assessment: Replaced efficacy with effectiveness	SS
		# 20.3	Added best management practices and potential non-conformities to list of topics	SS
		# 21	Added to include potential non-conformities to meet new DWQMS 2.0 Standard	SS
022	30-Oct-2018	# 5.1	Added reference to GIS mapping	SS

		# 7	Changed Risk Threshold to 17 for clarity	SS
		# 9	Change in ORO and First Instance OIC as per ORO policy dated January 2018	SS
		# 19.2.2	Changed audit schedule planning from July to 1 month prior to audit date	SS
		# 20.1	Changed frequency from every 12 months to once a calendar year	SS
		# 20.2	Removed council representative invitation statement	SS
023	14-Nov-2019	All Plan	Changed title of General Manager Environmental Services to Director of Public Works	SS
			Changed title of Water / Sewer Manger to Public Works Manager	SS
			Added new position of Water / Sewer Foreman and incorporated into document	SS
			Changed MOE to MECP	SS
		# 2	Updated Council Resolution date	SS
		# 6	Removed PUC from Town of Collingwood	SS
		# 9	Updated Organizational Chart - added Water / Sewer Foreman and current structure	SS
			Updated roles and responsibilities to reflect current duties	SS
		# 11.1	ORO designation to Manager, back up to Foreman	SS
		# 13.0	Added NSF 372 to level 4 statement, updated procurement by-law #	SS
		# 16.3	Removed section on sensaphone	SS
		# 21	Updated blank form location	SS
024	8-Jul-2020	Title Page	Added all system names, WW #, MDWL # and DWWP #	SS
		# 4	Reference to QMS Rep roles and responsibilities updated to section 9.2.6	SS
		# 5.1	Added staff notified of document changes by email, added Foreman's office for location of document availability.	SS
		# 12.1	Added In House Training Form as a method of documentation	SS
		# 15, 17.1	Outlook Task List replaced with CityWide Maintenance Manager program	SS
		# 16.1	Changed Council provided to notified of annual report availability. Added sampling summaries maintained by QMS Rep.	SS
		# 17.1	Added reservoir level sensor verificaton / calibration. Added records retained in FileHold records management system.	SS
		# 19.1	Added section on Auditors and adjusted numbering accordingly.	SS
		# 19.1.4, 19.2.6	Added action item requests and more detail on how OFIs handled.	SS
		# 19.2.2	Added reference to process audit matrix.	SS
		# 19.2.3	Changed wording to "appropriate form" as there are forms for each audit type.	SS
		# 19.2.5	Added Interat Audit Summary of Findings form for results reporting.	SS
		# 20.5	Added action item request form for tracking	SS

