

Keswick and Sutton Water Distribution Subsystem



GEORGINA

Drinking water quality management system
(DWQMS)

Operational Plan

Nov. 7, 2022



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Introduction

Purpose

The purpose of this operational plan is to describe the comprehensive Quality Management System (QMS) developed and implemented by the Town of Georgina for the operation and maintenance of the Keswick-Sutton Water Distribution Subsystem. Key requirements of the QMS are to meet the requirements of the Drinking Water Quality Management Standard (DWQMS), further known as the “standard.” This DWQMS Operational Plan includes references to all components of the DWQMS.

Scope

This operational plan covers the activities and personnel associated with all operational aspects of the drinking water distribution system for the Town of Georgina.

This operational plan, the procedures, appendices, and other DWQMS documentation that are referenced herein are complementary to the legislated requirements of the Safe Drinking Water Act in the Province of Ontario. The scope of the water distribution system begins at the point where the treated water enters the Town of Georgina distribution main from the transmission pipelines of the Region of York and ends at the property lines of the consumers. The scope of this operational plan does not cover metering.

References

- Implementing Quality Management: A Guide for Ontario’s Water Systems (July 2007)
- Bill 195 – Safe Drinking Water Act, 2002
- Ontario Regulation O.Reg 170/03; Drinking Water Systems
- Drinking Water Quality Management Standard (DWQMS) Final – Version 2.0 (February 2017)

Definitions/Acronyms

Audit	A systematic and documented verification process that involves objectively obtaining and evaluating documents and processes to determine whether a quality management system conforms to the requirements of the DWQMS.
Compliance	The fulfillment of a regulatory requirement
Conformance	The fulfillment of a DWQMS requirement

Control Measure	Includes any process, physical steps, or other contingencies that have been put in place to reduce a hazard before it occurs
Critical Control Limit (CCL)	The point at which a critical control point response procedure is initiated
Critical Control Point (CCP)	An essential step or point in the system at which control can be applied to prevent or eliminate a drinking water health hazard or to reduce it to an acceptable level
Document	Writing (physical or digital) conveying information that can be changed, altered, or updated.
DWQMS	Drinking Water Quality Management Standard, approved by the Ministry of Environment, Conservation and Parks (MECP) in accordance with s.21 of the Safe Drinking Water Act (SDWA)
Emergency	A potential situation or service interruption that may result in the loss of the ability to maintain a supply of safe drinking water to consumers
ERP	Emergency Response Plan – Municipal plan, or internal documentation of Emergency Response Procedures in the case of Emergencies
Hazard	A source of danger that may cause drinking water to be unsafe for consumption. Hazard may be biological, chemical, physical, or radiological in nature
infrastructure	The set of interconnected structural elements that provide the framework for supporting the operation of the Drinking Water System, including buildings, workspaces, process equipment, water mains, valves, hydrants, hardware, software, and support services.
Monitoring	includes any checks or systems that are available to detect the potential for hazards to occur
Non-Compliance	A failure under that SDWA, OWRA, or any regulation or legislation under these Acts that are associated with drinking water.
Non-Conformance Operators	A failure to fulfill a requirement of the DWQMS Water/Wastewater Operators (MECP Licenced and Certified)
ORO	Overall Responsible Operator (Water/Wastewater Superintendent, or designate)
QMS	Quality Management System – a system designed to establish a policy/objective and methods of how to achieve these, and to direct and control an organization with regard to quality
QMS Representative	DWQMS Compliance officer

QMS Implementation Team	Manager of Operations and Infrastructure, Water/Wastewater Superintendent, two MECP Certified Operators, Operations Coordinator, DWQMS Compliance officer (QMS Representative), reporting to the Director of Operations and Infrastructure.
Record	Writing (physical or digital) conveying information that cannot be changed altered or updated.
SCADA SOP	Supervisory Control and Data Acquisition Standard Operating Procedure – developed to standardize certain policies, processes, procedures and work instructions such that greater efficiency, greater safety, higher level of understanding, and an increased level of service is achieved
Top management	A person, persons, or group or people at the highest management level within the operating authority that makes decisions about the QMS and makes recommendations to the Owner about the Drinking Water System. At the ToG, this includes the Director of Operations and Infrastructure, and Chief Administrative officer (CAO).

1. Quality Management System

1.1 Purpose

The Town of Georgina, as the owner and operating authority of its drinking water system, the Keswick-Sutton Water Distribution Subsystem, is required to conform to the Drinking Water Quality Management Standard (the standard) (DWQMS Version 2.0) developed by the Ministry of the Environment, Conservation and Parks (MECP) through the Municipal Drinking Water Licensing Program. The DWQMS is applied to the distribution of potable drinking water to consumers within the distribution system boundaries, as described in Element #6. The operational plan is comprised of documents that outline the processes and procedures for the overall quality management of the Towns' Drinking Water System. The operational plan has been developed to represent the Operating Authority's Quality Management System (QMS) that conforms to the standard and satisfies one of the requirements for the Town's drinking water licence.

1.2 Procedure

The Town of Georgina water distribution system receives treated water from the Regional Municipality of York. This operational plan covers the water distribution system owned by the Town of Georgina (owner) and operated by the Department of Operations and Infrastructure (Operating Authority). The operational plan was developed to ensure safe and reliable drinking water is provided to all the citizens, businesses and visitors of the Town of Georgina. The operational plan also enables the Town to continue planning, implementing, checking and continually improving the drinking water system to ensure the higher quality of the drinking water. DWQMS 1-01 QMS schedule documents the annual schedules of required QMS activities. The annual schedule is to be updated every year to accommodate the Town's DWQMS.

1.3 Associated Documents and Records

DWQMS 1-01 QMS Schedule
Drinking Water Quality Management Standards

2. Quality Management System Policy

3.1 Purpose

The Quality Management System (QMS) Policy is a requirement to demonstrate the Town's commitment to deliver safe drinking water and continuously enhance consumer assurance in the drinking water quality.

3.2 Procedure

The Town of Georgina's Quality Management System Policy is:

The Town of Georgina and its water distribution system shall comply with all relevant legislation and regulations for the consistent delivery of safe drinking water to its residential and commercial/industrial customers.

The Town of Georgina shall also:

- Commit to the continuous improvement and maintenance of the Quality Management System
- Communicate openly and effectively with the public concerning relevant aspects of drinking water quality

(Adopted by the Council of the Town of Georgina on Dec. 11, 2019)

The approved copy of the QMS Policy can be found at the Civic Centre, the Water/Wastewater Operations Facility, and on the Town's [website](#).

3. Commitment and Endorsement

The purpose of this element is to communicate the Operating Authority's owners and top management commitment to and endorsement of the QMS in implementing, maintaining, and continually improving a Quality Management System to meet the requirements of the DWQMS. Endorsement of this operational plan by the owner and top management acknowledges the need for, and supports the provision of, sufficient resources to maintain and continually improve the QMS and the Drinking Water System.

Endorsement of the operational plan from the owner (Mayor/Council) shall be obtained by approval of a Council report requested for endorsement and demonstrated by certified Council minutes. The resources provided for the implementation, maintenance and continual improvement of this DWQMS operational plan reflect the owner's commitment for the system in the Town.

Endorsement of the top management is demonstrated by the signature of the top management on DWQMS top management endorsement.

Commitment is evidenced by:

- i. Ensuring QMS is in place that meets the requirements of the standard,
- ii. Communicating the QMS according to the Communication procedure (Procedure OP12 – Communication)
- iii. Ensuring the Operating Authority staff are aware of all applicable legislation and regulatory requirements (DWQMS Element #4 QMS Representative), and;
- iv. Determining, obtaining and providing the resources needed to maintain and continually improve the QMS (Procedure OP – Management Review).

To ensure the commitment and endorsement is kept current, Procedure OP3 shall be followed.

See procedure no. OP3 – commitment and endorsement

Subject: Procedure No. OP3 – Commitment and Endorsement	Authority: Drinking Water Quality Management Standard (DWQMS) Version 2.0				
Element: DWQMS Element #3 – Commitment and Endorsement	Pages: 1	Rev. #	DD	MM	YYYY
Department: Operations and Infrastructure		01	13	02	2012
		02	25	05	2013
		03	12	07	2017
		04	04	10	2017
		05	12	09	2018
		06	01	06	2019
		07	11	05	2020
Approved by: Director of Operations and Infrastructure	Contact Position for information: DWQMS Compliance officer (Quality Management System Representative)				

Objective

This procedure is to be followed by the QMS Representative to ensure that the operational plan contains a written endorsement of its contents by top management and the owner. The procedure ensures that the commitment and the endorsement of the operational plan and Quality Management System are kept current.

Commitment and Endorsement Procedure

- 1) The operational plan is endorsed by the owner during each Term of Council through a Council resolution. Town staff will prepare a report to Council outlining the content and context of the operational plan with the recommendation to endorse the Quality Management System/operational plan. The owner shall endorse the QMS/operational plan within the first year following the start of each Term of the Council.
- 2) A current version of the operational plan shall be distributed to the owner and to relevant staff who have a direct influence on drinking water quality. The QMS representative or top management shall answer any questions in relation to the operational plan and its contents.
- 3) A) in the event the Mayor, Council, Clerk, top management or the QMS representative, who are authorized signing personnel, cease to be employed at the Town of Georgina or there is a change in job responsibilities, the commitment and endorsement signature page form OP3 shall be reissued for signature. A report to Council will be submitted, authorizing the endorsement of the operational plan by top management and the owner through a Council resolution.

B) At no time shall the QMS representative position remain vacant.

3.1 Owner and Top Management Commitment and Endorsement form Op3

The operational plan for the Keswick and Sutton Water Distribution Subsystem documents the policies and procedures in place for the operation and management of the system. The operational plan conforms to and meets the requirements of the Ontario Drinking Water Quality Management Standard (DWQMS) Version 2.0. Endorsement of the operational plan by the owner and top management acknowledges the need for and supports the provision of sufficient resources to maintain and continually improve the Towns' drinking water system and Quality Management System.

The Town of Georgina Council endorses the operational plan for the Keswick and Sutton Water Distribution Subsystem as presented to Council, including the Quality Management Policy on Nov. 30, 2022. Resolution No.

Top management shall ensure that all staff of the operating authority are aware of all applicable legislative and regulatory requirements and that the QMS is effectively communicated to the owner through the annual summary report and top management meetings.

Margaret Quirk, Mayor

Date

Rachel Dillabough, Clerk

Date

Michael Vos, Director, Operations and Infrastructure
(Top management)

Date

Ryan Cronsberry, CAO (Top management)

Date

4. Quality Management System Representative

Top management (CAO and Director of Operations and Infrastructure) appoint Santosh Neupane, QMS Coordinator to the operation and maintenance of the QMS of the Town of Georgina Drinking Water Distribution System.

The QMS representative shall, irrespective of other duties or responsibilities:

- Develop, implement and maintain the QMS.
- Report on the effectiveness of the QMS to the Director of Operations and Infrastructure including the need for improvement.
- Report to Mayor and Council as required to ensure the QMS is maintained and improved.
- Ensure the current versions of documents and records required by the QMS are in use at all times.
- Promote the QMS throughout the Town of Georgina's waterworks division.
- Ensures personnel are aware of all applicable legislative and regulatory requirements that pertain to their duties for the operation of the drinking water subsystem.

Santosh Neupane, QMS Coordinator

Date

Michael Vos, Director, Operations and Infrastructure
(Top management)

Date

Ryan Cronsberry, CAO
(Top management)

Date

5. Documents and Records Control

The following procedures OP5.1 and OP5.2 outline and define the process for managing, maintaining and protecting all documents and records required for the conformance of the QMS. These procedures ensure the Town of Georgina documents and records pertaining to the QMS are kept current, readily identifiable, retrievable, stored, protected, retained and disposed of in the appropriate manner. All operators must be familiar with these procedures.

See procedure No. OP5.1 – documents control and OP5.2 – records control

Subject: Procedure No. OP 5.1 – Documents Control	Authority: Drinking Water Quality Management Standard (DWQMS) Version 2.0				
Element: DWQMS Element #5 – Documents and Records Control	Pages: 5	Rev. #	DD	MM	YYYY
Department: Operations and Infrastructure		01	09	13	2007
		02	01	31	2010
		03	16	06	2010
		04	20	08	2010
		05	21	10	2011
		06	04	06	2014
		07	06	02	2015
		08	15	12	2017
		09	08	02	2018
		10	12	09	2018
		11	01	06	2019
		12	11	05	2020
Approved by: Director of Operations and Infrastructure	Contact Position for information: DWQMS Compliance officer (Quality Management System Representative)				

Objective

The following procedure OP5.1 is a guide for Water/Wastewater Division staff to the protocol of document control. All operators must be familiar with this procedure.

Identified Documents

Documents used by the Water/Wastewater Operations division were identified by the QMS Implementation Team during the gap analysis in 2008. Only documents related to providing safe drinking water to our customers are required by the Quality Management System and are as follows:

1. Operational Plan (Emergency Response Plan – Appendix A)
2. Operational plan revision binder
3. Standard operating Procedures – WWW1 to WWW9, WWW11 and WWW14
4. Water/Wastewater master forms list
5. Circulation memo history binder
6. DWQMS communication checklist
7. Town of Georgina’s water distribution system drawings
8. Infrastructure – Provisions, maintenance, rehabilitation (elements 14 and 15) W.0.40.

The QMS Representative and Water/Wastewater Supervisor are responsible for maintaining, storing, controlling and updating documents as shown in the table below. Quality management system documents will be reviewed annually by the QMS Representative during preparation for the management review.

Document	How Document Controlled	Retention Period	Controlled by
Operational Plan	Operational Plan Revision Binder	10yrs	QMS Representative
Operational Plan Revision Binder	Version number, dated and initialed	10yrs	QMS Representative
Standard Operating Procedures	Circulation Memo History Binder	10yrs	QMS Representative
Water/Wastewater Master forms List	Dated and identified in index	10yrs	QMS Representative
Circulation Memo History Binder	Water /Wastewater Supervisor updates SOP's and Binder	10yrs	QMS Representative
DWQMS Communication Checklist	Dated and memos/emails retained in Binder	10yrs	QMS Representative
Water Distribution System Drawings	Dated, revision record and approved by	10yrs	QMS Representative
Infrastructure – Provisions, Maintenance, Rehabilitation (Elements 14 and 15)	Filed in W.0.40 – reviewed during budget preparation	10yrs	QMS Representative

Table 1: Identified "Documents" within the Quality Management System

5.1 Regulations as documents

Ontario regulations are also identified as documents. Hard copies can be found in the references binder retained at the Water/Wastewater Operations Facility in the office of the DWQMS Compliance officer. Due to the frequency that regulations are changed, the most current version is available on the e-laws website at e-laws.gov.on.ca

From the left side, menu select <Consolidated Law> then select <Current>

Under <Browse> select letter <S>

Select <Safe Drinking Water Act, 2002, S.O. 2002, c. 32>

Select the Regulation you are looking for under <Regulations under this Act>

5.2 Document control procedure

(i) **Current, legible and readily identifiable**

- The revision date is identified on the document and the most current version is identified on the master forms list.
- Revisions indicate that a document was reviewed, edited and subsequently improved. The Water/Wastewater operator shall initial all changes to verify their accuracy.
- Waterworks operators may notice differences between system drawings and actual field conditions. Operators will notify the Water/Wastewater Supervisor of the discrepancy and a revision is initiated.
- Revisions to the 21 elements of the operational plan have been documented in the revision binder, which was created during the implementation process. All revisions to the operational plan are made in red until such time that changes are reviewed and approved. The QMS representative will initial such changes and reference is made in the operational plan revision binder. Each change is noted with a version number, revision number, dated, entered by and initialed. Once approved, the revisions are incorporated into the latest version of the document and changed to black ink.
- All documents pertaining to the QMS/operational plan are typed and clearly labeled.
- Standard Operating Procedures – revisions to WWW1 TO WWW9, WWW11 and WWW14 and the master forms list binder are identified in the circulation memo history binder. The Water/Wastewater Supervisor or the DWQMS Compliance officer updates the Standard Operating Procedures and revisions are documented in the index. The index indicates the document name, the reason and date for revisions, any actions taken and who the document is provided to.
- The DWQMS communication checklist binder retains memos/emails circulated representing changes to the DWQMS.
- The Town of Georgina's water distribution system drawings are dated and initialed. Memos and/or emails are retained in the DWQMS communication checklist binder.

(ii) **Retrievable, stored and protected**

- The operational plan, the operational plan revision binder, master forms list binder, DWQMS communication checklist and circulation memo history binder are retained at the Water and Wastewater Operations facility.
- The Town of Georgina's water and wastewater system is represented within York maps all pipes.

(iii) **Retained and disposed of**

- When documents pertaining to the QMS and operational plan are updated, the document being changed will be removed and the new document inserted.
- Paper copies/hard copies of documents after they have been updated will be stored in the operational plan revision binder and shall be retained at the Water and Wastewater Operations facility in the office of the DWQMS compliance officer.

(iv) **As built drawings**

The QMS Implementation Team identified these drawings as necessary to have available as reference material when locating below grade infrastructure. The Town's drawings are split into three geographical areas:

- a) Keswick Area
- b) Sutton Area
- c) Lakeshore Servicing Area (Willow Beach)

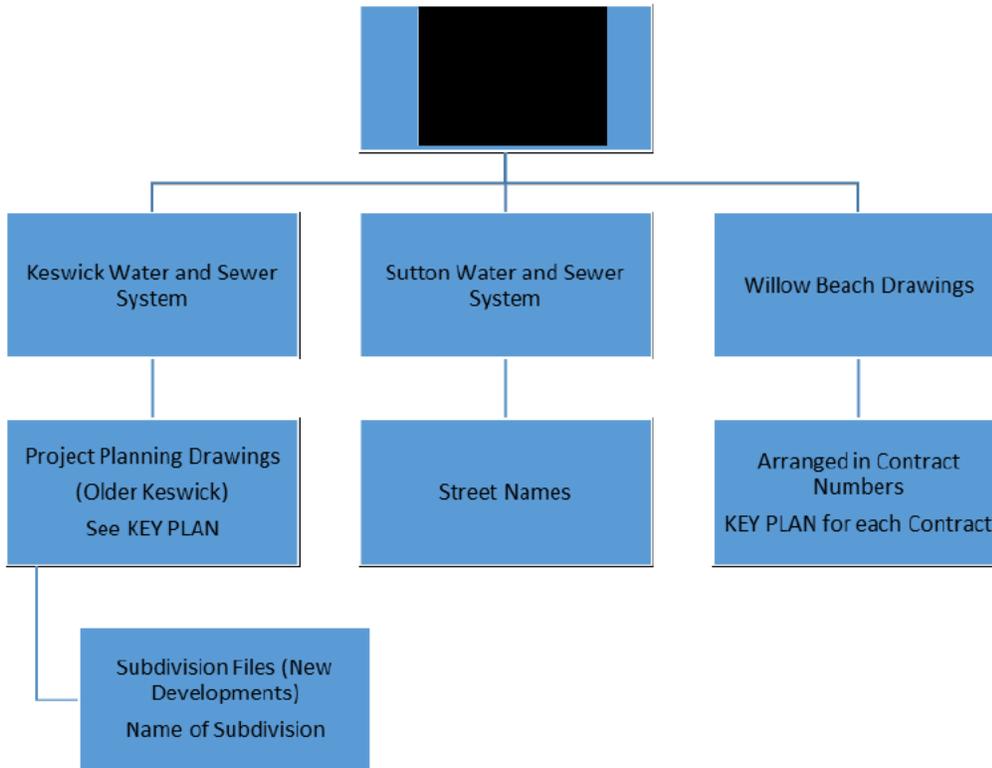
Further, drawings for the serviced areas are available in hardcopy (paper) format and digital format. As built drawings are stored as follows:

Hard Copies

Keswick and Sutton Areas – Retained at Water and Wastewater Operations facility and at the Civic Centre in the drawings room.

Lakeshore Servicing Area (Willow Beach) – retained at the Civic Centre on the second floor or on hanging files in the Operations Division.

Digital Copies: As built drawings stored digitally on the network:



SUBJECT: Procedure No. OP5.2 – Records Control		AUTHORITY: Drinking Water Quality Management Standard (DWQMS) Version 2.0				
Element: DWQMS Element #5 – Documents and Records Control	5	Pages:	Rev. #	DD	MM	YYYY
			01	13	07	2009
		02	16	06	2010	
		03	19	08	2010	
		04	04	06	2014	
		05	15	12	2017	
		06	08	02	2018	
		07	12	09	2018	
		08	01	06	2019	
		09	11	05	2020	
Department: Operations and Infrastructure		Contact Position for information: Quality Management System Coordinator				
Approved by: Director of Operations and Infrastructure						

Objective

The following procedure is a guide for Water/Wastewater Division staff to the protocol for record control. All operators must be familiar with this procedure.

Identified Records

The following records were identified by the Quality Management System (QMS) Implementation Team:

1. Operator daily logs
2. Water booster station logs
3. Chain of custody forms
4. Microbiology reports
5. Chlorine/residual logs
6. Daily/weekly flushing logs
7. Waterworks call log (complaints and inquiries)
8. Water on/off log (residential service)
9. Maintenance/equipment records
10. Equipment manuals
11. ORO change notice(s)
12. Safe Drinking Water Act, annual reports
13. Summary of watermain breaks, emergency repairs and planned shutdowns log
14. Operator certificate/licence and training records
15. MECP form 1 – Record of watermain authorized as a future alteration

The ORO/Water and Wastewater Supervisor (or designate), the Operations Coordinator, and the DWQMS Compliance officer are responsible for maintaining, controlling, storing, protecting, retaining, disposing and updating records.

Document control procedure

- (i) Current, legible, readily identifiable, retrievable, stored and protected
1. **Operator daily logs** are the responsibility of each operator and are to follow Procedure No. WWW8 – Facility Activity Logbooks.
 2. **Water booster station logs** are retained at each booster station and operators follow Procedure No. WWW8 – Facility Activity Logbooks.
 3. **Chain of custody forms** are dated and initialed by the operator. Each entry is made in pen. Every completed form is reviewed and initialed by the Water/Wastewater Supervisor, DWQMS Compliance officer or designate. Copies are kept at the Water and Wastewater Operations Facility and are filed in the office of the DWQMS Compliance officer in a binders labelled analytical records (W.0.16). Previous years' copies are also retained at the Water and Wastewater Operations facility and are stored in the labelled grey cabinets. Originals are delivered to the accredited laboratory with the labelled samples. Data from the chain of custody forms are entered electronically on the Town of Georgina's server.
 4. **Microbiology reports** are received by the York-Durham Laboratory. Each entry is made in pen. Every completed form is reviewed and initialed by the Water/Wastewater Supervisor, DWQMS Compliance officer or designate. Copies are kept at the Water and Wastewater Operations Facility and are filed in the office of the DWQMS Compliance officer in binders labelled analytical records (W.0.16). Originals are retained in the office of the DWQMS Compliance officer. Previous year copies are retained in the Water and Wastewater Operations Facility in the labelled grey cabinets. Data from the microbiology reports are entered electronically on the Town of Georgina's server.
 5. **Chlorine/residual logs** are dated and initialed by the operator. Each entry is made in pen. Every completed form is reviewed and initialed by the Water/Wastewater Supervisor, DWQMS Compliance officer or designate. Copies are kept at the Water and Wastewater Operations Facility and are filed in the office of the DWQMS Compliance officer in binders labelled daily chlorine residuals (W.0.16). Originals are retained in the office of the DWQMS Compliance officer. Previous year copies are retained at the Water and Wastewater Operations facility in labeled binders in the grey cabinets. A spreadsheet containing data from the chlorine/residual logs is entered electronically on the Town of Georgina's server.

6. **Daily/weekly flushing logs** are dated and initialed by the operator. Each entry is made in pen. Every completed form is reviewed and initialed by the Water/Wastewater Supervisor, DWQMS Compliance officer or designate. Copies are kept at the Water and Wastewater Operations Facility and are filed in the office of the DWQMS Compliance officer in binders labelled FORM005 – chlorine residual flushing logs (W.0.16). Originals are retained in the office of the Water and Wastewater Supervisor. Previous year copies are also retained at the Water and Wastewater Operations facility in the labelled grey cabinets. Data from the daily/weekly flushing logs is entered electronically on the Town of Georgina’s server.
7. **Waterworks call log** (complaints and inquiries) are entered onto the computer in the Work Order System (Worktech). The Customer Service Associate (service hub) who received the call enters a Public Service Request (PSR) into Worktech, which creates an email forwarded to the Water/Wastewater Supervisor and the Water/Wastewater Lead Hand. The Water/Wastewater Supervisor or Lead Hand forwards the PSR email to an operator (who then reassigns the PSR to themselves). If more work is required, the operator updates the PSR and it remains open. The operator closes the PSR once work is complete. All PSR’s have unique numbers and are digitally dated. Each PSR indicates which operator carried out the work. Previous year logs of complaints and inquiries are kept at the Civic Centre and filed in the Operations and Infrastructure Manager’s office in file number W.0.8.

Staff within the Operations and Infrastructure Department can access previous work orders and tasks (from the old work order system) that are stored electronically on the Town of Georgina’s intranet server. PSR’s, from 2016 to currently active, can be accessed via the Worktech Pearl database using the search feature.

8. **Water on/off log** (calls from customers) are entered onto the computer in our Work Order System (Worktech). The Customer Service Associate (service hub) who received the call enters a Public Service Request (PSR) into Worktech, which creates an email forwarded to the Water/Wastewater Supervisor and to the Water/Wastewater Lead Hand. The Water/Wastewater Supervisor or Lead Hand forwards the PSR email to an operator (who then reassigns the PSR to themselves). If more work is required, the operator updates the PSR and it remains open or creates a Child Work Order for the additional work. The operator closes the PSR, once work is complete. All PSR’s have unique numbers and are digitally dated. Each PSR indicates

which operator carried out the work. Previous year logs of complaints and inquiries are kept at the Civic Centre and filed in the office of the Water/Wastewater Supervisor in file number W.0.8.

Staff within the Operations and Infrastructure Department can access previous work orders and tasks (from the old work order system) that are stored electronically on the Town of Georgina's intranet server. PSR's, from 2016 to currently active, can be accessed via the Worktech Pearl database using the search feature.

9. **Maintenance/equipment records** relating to the water distribution system are kept at the Water and Wastewater Operations facility.
10. **Equipment manuals** copies are retained at the Water Booster Station and in the Water and Wastewater Operations facility in labeled binders.
11. **ORO change notice(s)** are dated and typed. Each ORO change notice is sent via email to the Department of Operations and Infrastructure and other required individuals. An up-to-date "ORO Distribution Group" is located in the Global Address Listing. Any changes made to this list are forwarded to IT from the ORO, Operations Coordinator, or DWQMS Compliance officer. Copies of all notices are retained digitally.
12. **Safe Drinking Water Annual Reports** are typed and prepared by the DWQMS Compliance officer, reviewed by the Manager of Operations, and approved by the Director of Operations and Infrastructure or his/her designate. Annual reports are retained at the Civic Centre in the office of the Clerk and in a labeled binder in office of the DWQMS Compliance officer. Data used to generate the annual report is obtained from sampling/testing/monitoring data and chlorine residual results. The annual report can also be found on the Town's [website](#).
13. **Summary of watermain breaks, emergency repairs and planned shutdown logs** are dated and initialed by the operator. Each entry is made in pen. Notification and resolution notices are typed, dated and initialed by the ORO. Current year copies are retained Water and Wastewater Operations facility in a labeled binder in the office of the Water and Wastewater Supervisor. Previous year copies are also retained at the Water and Wastewater Operations facility in a labeled binder in the labelled grey cabinets. Digital copies of the reports maintained.

14. **Operator certificate/licence and training records** Copies of operator certificate/licence and training records are retained at the Water and Wastewater Operations facility in the office of the Water/Wastewater Supervisor. A copy of the certificate and licence of every certified operator is displayed conspicuously at the front foyer of the Water and Wastewater Operations facility.

15. **Form 1; Record of watermains authorized as a future alteration** Copies of all form 1; record of watermains authorized as a future alteration, and corresponding transmittal records are kept in binders labelled DWWP FORM 1 W.0.46.1 (C1, 2) located in the office of the DWQMS Compliance officer. Drawings for new watermain projects are located in a standing rack in the office of the Manager of Environmental Services.

All form 1 records, transmittal records, and scanned drawings are stored digitally.

Retained and disposed of

All records as identified above will be retained for 10 years. The Water/Wastewater Supervisor (or designate) and the DWQMS Compliance officer will dispose of records annually at the end of the calendar year. No document or record will be disposed of unless a record of the disposal is made, and signed by the DWQMS Compliance officer, or the Manager of Environmental Services.

Records will be disposed of by means of the Town's confidential paper shredding and recycling system.

6. Drinking Water System

The Town of Georgina owns and operates the Keswick-Sutton Distribution System No. [REDACTED] which classified as a Subsystem Class 2. The Town is responsible for operating and maintaining the distribution system, which is comprised of watermains, valves, two (2) booster-pumping stations, hydrants, meters and service connections.

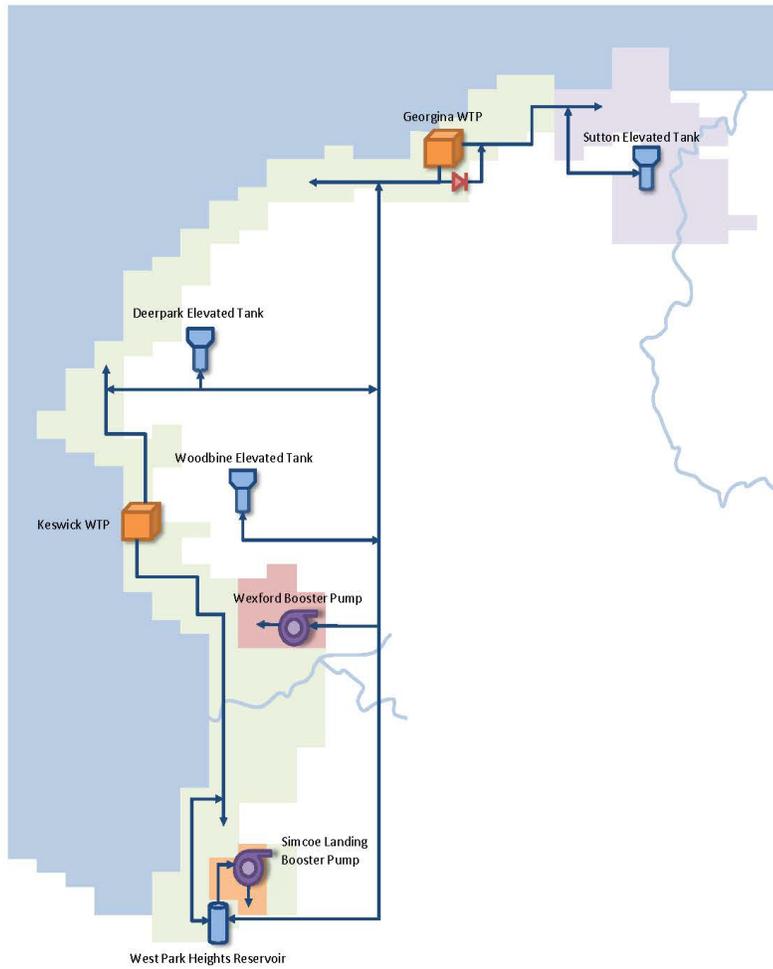
Potable drinking water is supplied to the distribution system from two (2) water treatment plants, owned and operated by the Regional Municipality of York (Region). The Region draws water for treatment from Lake Simcoe. The first treatment plant is located at Clarlyn Drive and Metro Road in Keswick. The second plant is located at Kennedy Road and Metro Road in Willow Beach. The Region also owns and operates four (4) water storage tanks located on West Park Heights in Keswick; on Deer Park Drive in Keswick; on Woodbine Ave in Keswick and on Dalton Road in Sutton. As of Oct. 31, 2022, the Keswick-Sutton Distribution system serves a population of approximately 39,000 residential customers including commercial and industrial customers which is roughly 80 per cent of the Town's population.

Water quality is maintained throughout the distribution system via the Town's watermain flushing program. Water sample is tested for quality parameters such as Microbiological presence/absence, heterotrophic plate counts, Trihalomethanes/Haloacetic Acids, and disinfection concentration. Event driven fluctuations and operational challenges and threats were identified during the Risk Assessment Process. They are documented in Element #8. The Town's water quality monitoring program ensures that the minimum required chlorine residual is maintained in potable water such that regulatory requirements are met. Samples are taken and tested to meet all requirements of O. Reg. 170/03.

Water Distribution System Overview Map/Schematic



TOWN OF GEORGINA WATER SYSTEM GEORGINA - EXISTING SYSTEM SCHEMATIC



LEGEND				HGL (m)			
	Water Treatment Plant		Elevated Tank		Lake Simcoe	Pressure Zone 1 (Keswick)	277.0
	Pump		Standpipe		Rivers	Pressure Zone 1 (Sutton)	270.4
	Motorized Valve					Pressure Zone 2	302.7
						Pressure Zone 3	298.0

7. Risk Assessment

A Risk Assessment Team consisting of the Manager of Operations, Water and Wastewater Supervisor, QMS Coordinator, two (2) or more designated Certified Operators, and an Asset Management Specialist will be assembled.

The team will identify the potential hazards and/or hazardous events, which could adversely affect the Town's ability to provide safe drinking water to its customers.

Hazardous events listed in the document Potential Hazardous Events for Municipal Residential Drinking Water Systems have been added to the list of risks.

Available monitoring, monitoring processes, control measures/procedures to control risks will be identified. Critical control points and their associated (if any) critical control limits will be identified during the risk assessment process. The risk associated with the hazard and/or hazardous event is then assessed by the team based on likelihood, severity and detectability.

The most recent risk assessment was conducted in November 2022 and shall be conducted at a minimum every three (3) years. At least once every calendar year, the Manager of Operations and the Water/Wastewater Supervisor and the QMS Coordinator will complete an annual review of the risk assessment and ensure that the information and assumptions remain current and valid. The risk assessment process is to consider the reliability and redundancy of equipment within the Water Distribution System, such that if hazards and/or hazardous events occur, emergency procedures and contingency plans shall be reviewed and improved if necessary.

See Procedure OP7 – Risk Assessment Procedure, [Definitions list](#), Table 2 – Risk rank table, and Table 3 – Control measures

Subject: Procedure No. OP7 – Risk Assessment Procedure	Authority: Drinking Water Quality Management Standard (DWQMS) Version 2.0				
Element: DWQMS Element #7 – Risk Assessment	Pages: 4	Rev. #	DD	MM	YYYY
		02	04	06	2014
		03	12	09	2018
		04	17	10	2018
		05	01	06	2019
Department: Operations and Infrastructure					
Approved by: Director of Operations and Infrastructure	Contact Position for information: DWQMS Compliance officer (Quality Management System Representative)				

Objective

The following procedure is a guide for Water/Wastewater Operations Division staff to the protocol for risk assessment. A [Definitions List](#) is found on pages 2 through 4.

Risk assessment procedure

1. The risk assessment team identifies hazards or hazardous events and associated hazards relating to the Town of Georgina’s water distribution system.
2. The hazard description/event, potential result, available monitoring and control measures are identified in the risk assessment table. In addition, to being considered is the reliability and redundancy of equipment and infrastructure (for example – backup generator/booster station and looped watermain/distribution system).
3. The hazard/hazardous event is ranked for likelihood, severity and detectability using the “ranking of hazards” in Table 2.
4. The rankings are added together to determine the total threshold. All hazards/hazardous events that have an overall risk threshold of greater than seven and can be controlled are considered a critical control point. A list of common control measures is found in Table 3.

The Risk Assessment Team will assemble and conduct a new risk assessment every three years.

Element 7 and 8 - Risk assessment and risk assessment outcomes – Hazard analysis and Critical Control Point Assessment (HACCP) Definitions list

Control Measure includes any process, physical steps, or other contingencies that have been put in place to prevent or reduce the result of a hazardous event before it occurs

Critical Control Limit (CCL) A CCL is the maximum or minimum value to which a physical, biological, chemical, or radiological hazard must be controlled, at a Critical Control Point to reduce, prevent, or eliminate it to an acceptable level. The CCL

may be derived from regulatory and legislative guidelines, or best management practices.

Critical Control Point (CCP)

The CCP is the point at which failure of emergency response (or SOPs) could cause harm to water users. It is the point, step, or procedure at which a control measure can be applied to reduce, prevent, or eliminate a drinking water health hazard or an adverse water quality incident to an acceptable level. A CCP can be identified through a risk ranking procedure, or through best management practices.

Result of Hazard

Potential outcomes of the hazardous event. The result of the hazard may be biological, chemical, physical or radiological in nature.

Source of Hazard/Hazardous Event

A source of danger or an event that may cause drinking water to be unsafe for human consumption.

Risk = Likelihood + Severity + Detectability*

*Numerical Value for CCP updated to reflect high, medium and low-risk rankings based on the above calculation.



Element 7 and 8 - Risk assessment and risk assessment outcomes – Hazard analysis and Critical Control Point Assessment (HACCP)		
Risk ranking table		
Description	Likelihood of hazardous event occurring	Ranking
Rare	Has not occurred or may occur less frequently than once every 10 years	1
Unlikely	Could occur or may occur once every 5-10 years	2
Possible	Has occurred or may occur once in a 5 year period	3
Likely	Has occurred or may occur on an annual or less frequent interval	4
Very Likely	Has occurred, or may occur once per month, or several times per year	5
Description	Severity of hazardous event occurring	Ranking
Insignificant	insignificant impact, little public exposure, little or no health risk and/or service interruptions	1
Minor	Localized Minor; limited public exposure, minor health risk requiring no medical treatment, localized loss of service and public notification	2
Moderate	Localized Major/widespread minor; public exposure, health impact requiring medical treatment; moderate part of the population affected, local or widespread interruption of service, area-wide media coverage and public notification	3
Major	Widespread major; large portion of population at risk; health impact requiring medical treatment, extensive loss of water supply, and region-wide media coverage	4
Catastrophic	Catastrophic/disastrous consequence; immediate widespread loss of service and available water supply, public at risk of severe illness or death, complete failure of systems	5
Description	Detectability of hazardous event occurring	Ranking
Very Detectable	Detectable using quantifiable indicators, sampling/testing /monitoring, on-line monitoring through SCADA, alarm systems linked to SCADA and auto dialers	1
Moderately Detectable	Moderately detectable; observable through gauges/indicators or other evidence (e.g. surface pooling of water), may require operator to manually detect alarm, notification by the public (consumer complaint/input)	2
Normally Detectable	Detectable by sight, sound, smell on rounds or through regular maintenance and operational tasks, no alarms present, problem indicated promptly by in-house field tests (i.e. Cl2) and/or microbiological laboratory sampling results	3
Poorly Detectable	Poor detection of hazard, visually detectable though not inspected on a regular basis - not normally detected prior to hazard/problem becoming evident, lab tests are not regularly taken (e.g. quarterly), no alarms present	4
Undetectable	Cannot be detected (e.g. radiological contamination)	5

Table 2 Risk Ranking Table

8. Risk assessment outcomes

Separate risk assessments were conducted on the water distribution system and the water booster stations (Table 3; Risk assessment outcomes).

- Following the risk assessments, the critical control limits were identified and documented in the risk assessment tables.
- Monitoring processes and/or procedures were then described and included in the risk assessment tables.
- Response procedures to control the hazard and/or hazardous event were then referenced and/or described in the risk assessment table.

See Table 3 – Risk assessment outcomes

 Element 7 and 8 - Risk Assessment and Risk Assessment Outcomes/Hazard Analysis and Critical Control Point Assessment (HAACP) 2022 Infrastructure and Operations, Water/Wastewater Division																
Process/ System	Source of Hazard/Hazardous Event	Class of Hazard (Physical, Chemical, Biological, Radiologic)	Available Monitoring Process within the System	Result of Hazardous Event/Consequence of Hazard	Likelihood	Severity	Detectability	Total Score	Risk Rank (H, M, L)	Control Measures	Critical Control Limits	Monitoring Process	Response Procedure	Notes/Action Items		
Distribution System	1	Loss of Pressure (watermain break)	Physical	SCADA monitoring and customer complaints of reduced pressure. Residual Monitoring/Sampling for the hazard associated with loss of pressure	Physical Biological Chemical	1	3	1	5	Medium	Maintenance of Flow, Establish Air Gap, Flush, excavating/dewatering, Disinfection of Pipe and Repair Parts, Maintain pressure through valve throting and use of System Redundancy	Flush until Cl ₂ residuals rise above 0.2mg/L (min), preferably above 0.4mg/L	SCADA, Customer Complaints of reduction of pressure	See Standard Operating Procedures for Watermain Break WWW6 and WWW12		
	2	Loss of Pressure (Fire Flow)	Biological Physical	SCADA monitoring and customer complaints of reduced pressure. Residual Monitoring/Sampling for the hazard associated with loss of pressure.	Biological Chemical Physical	1	3	3	7	Medium	System design including redundancy, Fire Pumps, Looping etc.	Pressures must maintain 20psi, ensure booster stations are operational and maintain required pressure during fire flow events	SCADA, Customer Complaints of reduction of pressure, Station Checks		SOP needs to be developed YoR to provide SCADA access to towers Consider BFP implementation into residential/commercial properties through existing or new by-laws	
	3	Loss of Pressure (Tower Levels/Sustained Pressure Loss)	Biological	SCADA monitoring and customer complaints of reduced pressure and taste and odor complaints.	Biological Chemical	1	2	1	4	Low	Coordinate and communicate with ROY to monitor the situation in treatment, disinfection and transmission. Sampling and monitoring Cl ₂ residuals. Design and redundancy if needed	Pressures must never fall below 20psi	Maintain communication with ROY, Water service responds to any public inquiries		Ensure ERP references Communication Protocols with ROY... Correspond with ROY to develop a post-event response process. ERP covers similar events, though does not include ToG responses to bfp contamination.	
	4	Loss of Cl ₂ Residual as a result of increased Cl ₂ demand within the distribution network (caused by e.g. Biofilm, corrosion)	Biological Chemical	Water Quality Monitoring Program through daily/routine, Cl ₂ Residuals	Biological Secondary Contamination	3	2	2	7	Medium	Flushing Communication with ROY	When free chlorine residuals fall below 0.4mg/L	Operators take Cl ₂ residual samples during water quality monitoring events	See Standard Operating Procedure WWW4		
	5	Service Connection Break	Biological Chemical	Customer complaints of taste and odor, Water Quality Monitoring Program through daily/routine Cl ₂ Residuals	Biological Chemical Physical	1	1	3	5	Low	Backflow by-Law (Jan 2008) - this needs to be discussed at the Director on how do we implement a program like this. I.e. Residential bfps. Education/Public Awareness (e.g. In-home flushing)		Customer complaints of taste and odour	Field monitoring to determine whether a backflow scenario may have occurred. initiate Adverse Water Quality Procedure if warranted; WWW5		
	6	Contamination due to the commissioning of new Watermains including rehabilitation and replacement mains	Biological	On-site monitoring during the commissioning of new/replacement watermain, Cl ₂ residual sampling and monitoring. No final connection until all tests pass (i.e. Swabbing, turbidity, pressure, hydrostatic).	Biological Chemical Physical	1	2	1	4	Low	Procedure for new watermain commissioning procedure Monitor water sample results	N/A	Third party completes testing and sampling of new main prior to commissioning, licensed operators are to witness the service connection commissioning	See Standard Operating Procedure for Commissioning new watermains WWW11	Review the process, validate whether SOP is sufficient	
	7	Pandemic - Staffing shortage, or work stoppage due to Labour dispute	Biological Chemical Physical	None	Biological Chemical Physical	2	4	1	7	Medium	Follow top management instructions for transitioning until new hire. Communicate disputes to the department level seeking support in resolving dispute.	Readily available staff for sampling and monitoring to ensure safe drinking water, Back-up roster of Engineers and approved Operators, per O.Reg 178/03	N/A			
	8	Vandalism/Theft	Biological Physical Chemical	Routine inspections/operator checks to assess condition of the infrastructure SCADA; intrusion alarms	Physical	2	1	3	6	Low	Daily or routine physical inspectional Operator present and visible during routine inspections, acting a deterrent to potential vandals Consider budgeting for CCTV/security cameras/surveillance at each Booster station/Pumping station.	N/A	Operators inspect stations during rounds daily High visibility clothing on Ops. Staff, and high visibility vehicles to deter vandals and other terror-driven acts	incident Reports Police Reports	Graffiti or tagging is not tracked/logged. MOE inspectors requested information on Vandalism during the last inspection, consider developing SOP in the future.	
	9	Terrorism	Biological Physical Chemical	Routine inspections/operator checks to assess condition of infrastructure Cl ₂ residual monitoring to ensure proper disinfection within the water system	Biological Physical Chemical	1	2	2	5	Medium	Operator present and visible inspection during daily rounds, acting a deterrent to potential terror acts. establishing 24 hours security guard	N/A	Operators inspect stations during daily rounds.	See Emergency Response Plan for Backflow See ERP	Severity and detectability will vary based on the scale of terror attack,	
	10	Source Water Supply Shortfall	Physical	Region of York (ROY), Lake Simcoe Conservation Authority, Federal (MOE) and Provincial Government (MECP)	Biological Chemical Physical	1	2	1	6	Low	Coordination with ROY, Consider implementing Local Water Conservation Efforts (i.e. Lawn, watering restriction), Supplying potable/bottled water	N/A		Buy water/supply bottled water to the residents, Keep residents informed via social media and newspaper	Open communication with region to determine their response to this hazard, specific to ToG and formulate response for ToG	

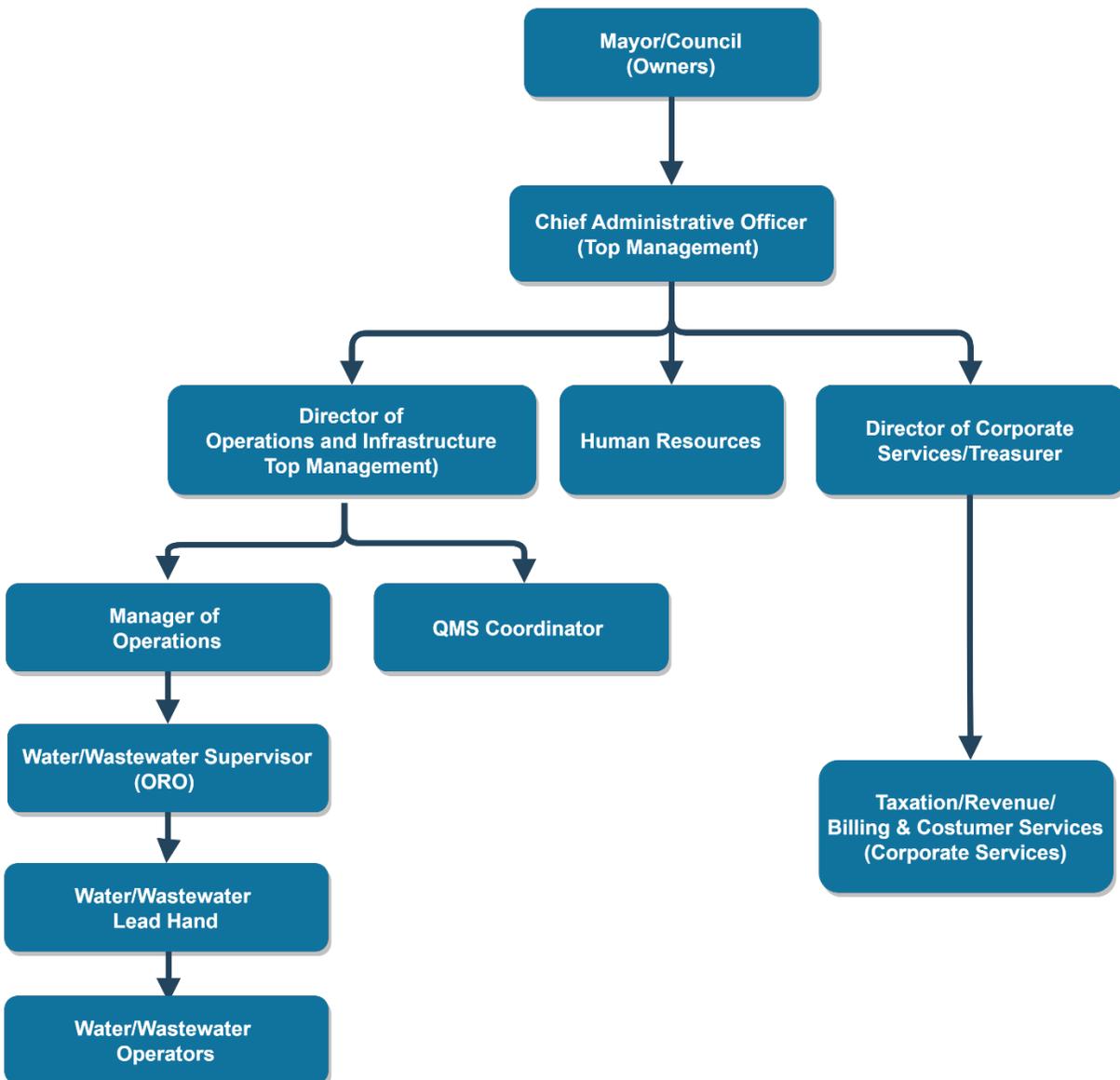
	11	Extreme Weather Events (i.e. Tornado, flash freeze downing power lines etc.)	Physical Chemical Biological	Province Wide Alert (Emergency Alert System), ToG IT Department sends notifications of weather events, News Channels	Physical	1	2	1	4	Low	SCADA monitoring power/energy use, Alert Systems and interdepartmental communication, Back-up Generators, Steamer/Thawing Machine	N/A		Backup power generator	Consider correspondence with the Conservation Authority and align Monitoring and Response Procedures (i.e. review the need of Conservation Authority alerts/notification process)
	12	Sustained Extreme Temperatures	Physical Chemical Biological	Routine inspections Customer complaints	Physical	2	2	1	5	Medium	System Design/Engineering/Refurbishment (i.e. replacement of shallow mains) ROY controls and monitors any operational changes at the plants. Deliver Notices/Door Knockers to the public				Ensure thawing machines are operational prior to winter months, and if required, budget for a new thawing machine.
	13	Power Loss	Physical Biological	SCADA and Alarms Routine inspections	Physical	2	1	1	4	Low	<u>Simcoe Landing #16/Connell #27</u> SCADA and Alarms, Back-up generator with Automatic Transfer Switch, System Design: check valves automatically open to provide supply from non-boosted zone			See Emergency Response Plan	
Booster Stations	14	Catastrophic Failure (i.e. Fire/explosions, earthquake, tornado, accidents)	Physical Chemical Biological	SCADA; Alarms and Systems Monitoring (heat sensors, communication failure alarm) Routine inspections Communication and notices from the Public	loss of total pressure, watermain breaks, Loss of power/backup, Chemical spill	1	3	1	5	Low	System Design and Redundancy; multiple ROY water towers to supplement a flow and pressure during station failure.			See Emergency Response Plan	
	15	SCADA: Server Failure and or PLC Failure	Physical Biological	Daily WIN911 Test Alarm at noon hour (sent to On-Call Operator for acknowledgment) Daily/Routine Checks	Loss of server communication, Loss of site control, No alarms, YR auto dialer	3	1	1	5	Medium	SCADA Server Failure Alarm, Routine Operational checks and inspections of booster stations, Able to operate stations on Manual Mode			N/A	Consider developing SOP/Work instruction for SCADA Server Failure Alarm (what processes are in place to ensure 100% redundancy and back-up power and monitoring). Consider getting Read access to YOR SCADA
	16	SCADA: Operational data Stolen (cyber security)	Physical Biological	SCADA Server Alarms Communication or notification from the public regarding system pressure.	Loss of server communication, Loss of site control, No alarms,	1	2	1	4	Low	Routine Operational checks and inspections of booster stations, System Design and Redundancy; multiple ROY water towers to supplement a reduced flow and pressure during station failure.			N/A	Consider developing SOP/Work instruction for SCADA PLC Failure. Open communication with Region for SCADA read access.
	17	Aged structures (watermains, valves failure, low Cl2 residuals)	Physical Biological Chemical	Observational: routine checks	Watermain damage, valves damage. Low water quality	4	3	1	8	Medium	Communicate to Asset management and planning units for maintenance and rehabilitation of the ageing infrastructures	N/A	visual inspection Physical assessment Record tracking	N/A	

9. Organizational structure, roles, responsibilities and authorities

The QMS Representative will keep the organizational structure, respective roles, responsibilities and authorities current and will communicate this information to the Owner, Top Management, and other personnel.

9.1 Water distribution organizational chart

The following chart represents the organizational structure for those personnel within the Town of Georgina whom directly affect the quality of drinking water.



9.2 Roles, responsibilities and authorities

The following tables outline the roles, responsibilities and authorities of personnel as they relate to the Drinking Water System (DWS), and to drinking water quality. All personnel are required to know their duties and how they relate to other groups responsible for the operation, maintenance, and administration of the DWS.

Position	Roles/responsibilities	Authorities
Owner: Mayor/Council	<ul style="list-style-type: none"> • Demonstrates commitment to the QMS • Endorses the contents of the Operational Plan • Ultimate responsibility for the provision of safe drinking water to the Town of Georgina • Ensure resources needed to support the QMS are met. • Mayor is responsible for declaring a “State of Emergency” 	<ul style="list-style-type: none"> • Financial and administrative authority related to the provision and allocation of necessary resources for the safe operation, maintenance and upkeep of the drinking water system based on Town staff and management recommendations. • Authority and ultimate decision with respect to hiring the Chief Administrative officer (CAO)
Top Management: Cao/Director of Operations and Infrastructure	<ul style="list-style-type: none"> • Complete oversight of the entire distribution system • Endorse the development, implementation and maintenance of the QMS • Provide and/or obtain resources to effectively maintain the QMS • Obtain the necessary infrastructure and resources to operate and maintain the drinking water system safely and effectively • Ensure the system is operating in accordance with all applicable legislation and regulations • Communicate with the Mayor and Council about the QMS and the water distribution system • Recommends to the Owner resources required to maintain and continually improve the QMS and DWS • Ensure that the management review, as described in Element 20; management review, is conducted once every calendar year. 	<ul style="list-style-type: none"> • Financial, administrative and technical authority related to the distribution of safe drinking water within the Town of Georgina • Act as signing authority (Owner Representative) for DWWP alteration forms (form 1/2/3), and Director Notification forms. • Procurement and signing authority as per town Procurement by-law • Makes recommendations to the Owner regarding improvements to the DWS and Quality Management System • Ultimate corporate decision-making authority with respect to hiring staff, budget preparation and approval of purchases in accordance with the Procurement by-Law.

Position	Roles/responsibilities	Authorities
Manager of Operations	<ul style="list-style-type: none"> • Oversight of the Operations and Infrastructure Department • Support the development and implementation and maintenance of the QMS • Monitors expenditures and financial performance • Provide and/or obtain resources for the QMS and necessary infrastructure and resources to operate and maintain the drinking water system safely and effectively. • Ensure the system is operating in accordance with all applicable legislation and regulations. • Communicate with Top Management about the QMS and about the overall performance of the DWS. • Ensure that the Management Review, as described in Element 20; management review, has been delegated to the appropriate staff and is conducted once every calendar year. 	<ul style="list-style-type: none"> • Financial, administrative and technical authority related to the Operations, Maintenance and Management of the DWS at the Town of Georgina • Supervises budget preparation • Manages Operating Authority staff • Review and approve the design of water system additions, modifications or extensions as they relate to Capital Projects • Act as the signing authority (Owner representative) for DWWP alteration forms (form 1/2/3) as they relate to Capital Projects. • Financial, administrative and technical authority related to the operations, maintenance and management of the DWS at the Town of Georgina
QMS Coordinator	<ul style="list-style-type: none"> • Carry out the activities and manage programs related to the Quality Management System as directed by the Director of Operations and Infrastructure • QMS Representative and Implementation Lead • Preparation of budget and planning materials • Recommendation of system improvements • Develop procedures and processes for assuring water quality • Coordinate emergency response planning, training • Lead annual management review • Ensures personnel are aware of all applicable legislative and regulatory requirements that pertain to their duties for the operation and maintenance of the DWS 	<ul style="list-style-type: none"> • Maintain and update the QMS in conformance with the Drinking Water Quality Management Standard (DWQMS) • Communicate QMS to top management • Leads annual MECP inspections • Liaison for internal and external auditing process • Reports AWQIs to MECP Spills Action Centre and to the York Region Public Health

Position	Roles/responsibilities	Authorities
Water/Wastewater Supervisor (Oro)	<ul style="list-style-type: none"> Plan, schedule and supervise all operational activities related to the DWS. Coordinate and supervise all maintenance and repair tasks as related to the Town's DWS including, though not limited to facilities, booster stations, pump stations, valves, and all instrumentation Managing and maintaining the SCADA system Communication/liaison with Operations/maintenance staff, contractors, developers, engineers, and service/material suppliers Communicate with the public to prevent, resolve or minimize the impact of utility-related issues. Coordinates training programs for all operations staff. Assessment of operators/personnel performance (annual) System Overall Responsible Operator (ORO) Ensure the system, and all Staff within the system are operating in accordance with all applicable legislation and regulations 	<ul style="list-style-type: none"> Direct operators in day-to-day operation and maintenance of the water distribution system Oversee adverse water quality incidences and responses Identify and oversee staff training needs Recommends operational non-capital purchases Purchasing authority of <\$5,000 Recommend changes to the QMS Review designs and layouts of new developments as they relate to the DWWP and form 1/2/3.
Water/Wastewater Lead Hand (foreman)	<ul style="list-style-type: none"> Supervise the monitoring, maintenance and operate the distribution system in accordance with the established SOP. Report and act on incidents of non-compliance Report any abnormal conditions to the Water/ Wastewater Supervisor or Environmental Services Manager Carry-out duties and tasks as assigned by the Water/Wastewater Superintendent or Environmental Services Manager and as per established water distribution policies and procedures 	<ul style="list-style-type: none"> Monitor process and recommend corrective actions Recommend changes to the QMS Respond to and document public complaints Attend site visits Respond to public inquiries
MECP Certified Water/Wastewater Operators	<ul style="list-style-type: none"> Monitor, maintain and operate the distribution system in accordance with established standard operating procedures Document all operating activities in the facility log in accordance with provincial legislation and established operating procedures Report and act on incidents of non-compliance Report any abnormal conditions to the Water/Wastewater Supervisor or Lead Hand Carry out duties and tasks as assigned by the Water/Wastewater Superintendent and as per established water distribution policies and procedures 	<ul style="list-style-type: none"> Monitor process and recommend corrective actions Recommend changes to the QMS Respond to and document public complaints

Position	Roles/responsibilities	Authorities
Development Engineering Department	<ul style="list-style-type: none"> • Meet annually with the Operations and Infrastructure group to discuss and implement any updates to the ToG “Development Design Criteria”, as required • Ensure all new developments requiring watermain additions, modifications or replacements satisfy pre-approvals of the Drinking Water Works Permit under ToG DWWP #119-201 • Ensure all new developments requiring Watermain additions, modifications or replacements meet MECP guideline “Watermain Design Criteria for Future Alterations Authorized under a DWWP” • Review and compare water model results for each assignment of Water/Wastewater servicing allocation. • Ensure allocations for water quantity, quality and pressure meets the Town’s design criteria and MECP design guidelines • Provide construction oversight • Provide as-built drawings to the Operations and Infrastructure department • Responsible for ensuring the Water Model is updated upon approval of works • Participate in the Annual Operations and Infrastructure meeting for the provision of infrastructure and exchange of information sessions 	<ul style="list-style-type: none"> • Review and approve designS of new developments • Act as signing authority (owner representative) for DWWP alteration forms (form 1/2/3). Provide Operations and Infrastructure group with the same for record keeping.
Human Resources	<ul style="list-style-type: none"> • Facilitate new employee orientation and corporate policy training • Promote Town values, the Code of Conduct and HR policies with all staff • Assist in developing job descriptions and career postings • Schedule interviews with candidate applicants, and contribute to the hiring process by providing valued input to the hiring manager regarding the competencies and qualifications of potential hires • Support department managers throughout the hiring process 	<ul style="list-style-type: none"> • Assist Department Managers with job/employee evaluations • Respond to employee inquiries regarding HR policies, procedures, labour relations and programs.
Director of Corporate Services/Treasurer	<ul style="list-style-type: none"> • Prepare and recommend financial plans for the Drinking Water System that satisfy the requirements prescribed in the Safe Drinkings Water Act (SDWA) and the associated regulation O.Reg. 453/07 – Financial Plan • Prepare, or assist in the preparation of the annual budget based on business cases and detailed information provided by staff and management • Monitors expenditures and financial performance, and provides recommendations to top management regarding budget and finances • Establish appropriate water rates based on the long-term requirements identified in the financial plan required under O.Reg. 453/07 • Provide financial reporting to top management 	<ul style="list-style-type: none"> • Corporate signing authority regarding long-term financial plans as described in O.Reg 453/07 – Financial Plan • Provides recommendations for the approval of Corporate spending and procurement in accordance with the Procurement by-law, and the requirements of O.Reg 453/07 – Financial Plan

Position	Roles/responsibilities	Authorities
Taxation, Revenue and Customer Service Division	<ul style="list-style-type: none"> • Field and direct customer (resident, public inquiries) calls relating to Water/Wastewater concerns • Generate and escalate work orders as they relate to Water/Wastewater operation and maintenance • Billing and collection • Reporting 	<ul style="list-style-type: none"> • Provide Water/Wastewater Operations and Maintenance staff with details regarding customer inquiries • Schedule Water Service “On/off” requests
Manager of Asset Management and Technical Services	<ul style="list-style-type: none"> • Oversight of the Town’s water-related infrastructure and assets • Support the development and implementation of an Asset Management Plan • Monitors expenditures and financial performance as related to W/WW linear and vertical assets • Provide and/or obtain resources for the QMS and necessary infrastructure and resources to operate and maintain the drinking water system safely and effectively • Communicate with top management about the W/WW infrastructure and about the overall performance of the WDS 	<ul style="list-style-type: none"> • Provides input in budget preparation • Review design of water system additions, modifications or extensions as they relate to capital projects, and/or asset management projects

10. Competencies

The following Competency Table illustrates the competencies required by personnel whose duties directly affect water quality.

Function	Required competencies	Desired competencies
Director of Operations and Infrastructure	formal academic training in an engineering discipline or similar formal leadership training; Municipal, University, Schools and Hospital (MUSH) Eligibility for or full membership in PEO Valid driver's licence	Progressive experience at a management level in a municipal Public Works Distribution System Environment.
Manager of Operations	formal academic training in an engineering discipline or similar formal leadership training; five (5) years' combined experience in management, development and implementation of municipal capital projects Valid driver's licence	Experience with tendering processes and contract development
QMS Coordinator	Minimum 3 years' relevant Municipal experience WHMIS Health and safety training Leadership, motivation, communication, coaching and mentoring training internal auditor training Valid driver's licence	Financial planning training
Water/Wastewater Supervisor	Progressive experience in a municipal Public Works Department with a thorough working knowledge of municipal water operations Minimum Class II Certificate of Competency for Water Distribution Systems Proven ability to coordinate and support several crews involved in the operations, maintenance and repair of the DWS Knowledge of relevant acts and regulations as they apply to the Waterworks Operations Supervisory skills for Public Works WHMIS First Aid (including CPR) Confined space training Valid driver's licence SCADA operations experience	Confined space rescue training Experience in Data Management/CMMS/Work Management Software Member of AWWA/OWWA
Operators	Minimum Class I Distribution Certification Knowledge of relevant Acts and Regulations as they apply to the Waterworks Operations WHMIS First Aid (including CPR) Confined space training Valid driver's licence	Class II Distribution Certification Confined space rescue team training
Operators-in-Training	OIT Water Distribution licence WHMIS First Aid (including CPR) Confined space training Valid driver's licence	Class I Distribution Certification

To ensure competency requirements are met, the following personnel procedures take place:

- All new positions filled must provide evidence of certification and other listed requirements.
- Operator distribution certificates/licences are posted at the Water/Wastewater Operations facility.
- All operators receive training that meets the requirements of O.Reg. 128/03, as amended.
- Copies of all operator-training records are retained at the Water/Wastewater Operations facility in labeled binders in the office of the Water/Wastewater Supervisor.

The Town of Georgina's budget process includes training funds for all operators. At a minimum, the training budget includes funding for legislated and required training to maintain operator certification in accordance with O.Reg. 128/03. The Water/Wastewater Supervisor (or designate) reviews training needs with the operators to ensure regulatory requirements are met.

All personnel are aware of the relevance of their duties and how those duties affect safe drinking water. This awareness is communicated to operators via QMS updates conducted by the DWQMS Compliance officer (QMS Representative), and through MECP inspection Summaries provided by the Director of Operations and Infrastructure to the owner when necessary.

11. Personnel coverage

The scheduled hours of work for the Water/Wastewater Supervisor, Water/Wastewater Lead Hand and Operators is [REDACTED] The scheduled hours of work for the DWQMS Compliance officer/QMS Coordinator is [REDACTED] The scheduled hours of work for the Manager of Operations and Director of Operations and Infrastructure is [REDACTED] Monday to Friday.

See Procedure Op11 – Personnel coverage

Subject: Procedure No. OP11 – Personnel Coverage	Authority: Drinking Water Quality Management Standard (DWQMS) Version 2.0				
Element: DWQMS Element #11 – Personnel Coverage	Pages: 2	Rev. #	DD	MM	YYYY
Department: Operations and Infrastructure		01	04	06	2014
		02	20	03	2015
		03	15	12	2017
		04	18	01	2018
		05	12	09	2018
		06	01	06	2019
Approved by: Director of Operations and Infrastructure	Contact Position for information: Quality Management System Coordinator				

Objective

The following procedure is a guide for Water/Wastewater Division staff to the protocol for personnel coverage.

Personnel coverage procedure

1. The Overall Responsible Operator (ORO) is the Water/Wastewater Supervisor. In the event of his absence, the Water/Wastewater Supervisor assigns an operator to assume the role of ORO and is identified in the logbook. Regulation 128/04, Section 23 shall be followed. This assignment is sent in an email to operators, the Manager of Operations, the Director of Operations and Infrastructure and to other relevant staff. The notification is filed in the ORO binder and retained online digitally.
2. The on-call operator is assigned by the Water/Wastewater Supervisor on a rotating basis to respond to after-hours and weekend concerns. A security check of the two booster stations are made regularly as required during normal working hours. The on-call operator conducts security checks on weekends and statutory holidays as required.
3. The Town maintains an after-hours number (905-476-4301) for water-related concerns. Customer complaints related to the distribution system, which require immediate attention, are directed to the on-call operator. A single operator following standard operating procedures can address the majority of off-hour concerns. If the nature of the concern requires additional staff, the on-call operator can request assistance from any of the other licensed operators. Contact information for all operators is documented in the on-call binder, readily accessible to the on-call operator. The 24/7 coverage ensures that sufficient personnel are available at all times such that safe drinking water is provided to the public. In the event of a water-related emergency, the on-call operator shall follow the Emergency Control Protocol found in Appendix A.

12. Communications

The purpose of this procedure is to ensure that communication of the QMS is carried out. A communication checklist has been developed (Table 5). Any issue that is determined by the QMS representative to effectively maintain the QMS will be communicated and documented on the communications checklist. All revisions to documents including the operational plan shall be documented in the revision binder. The QMS rep shall determine a suitable means to effectively communicate these revisions to personnel and log such on the communications checklist.

An up-to-date internal contact list and emergency contact list is found in the 2021 Emergency Response Plan on page 26 and 28-29 respectively.

See Procedure OP12 – Communications

Subject: Procedure No. OP12 – Communications	Authority: Drinking Water Quality Management Standard (DWQMS) Version 2.0				
Element: DWQMS Element #12 – Communications	Pages: 2	Rev. #	DD	MM	YYYY
		01	13	07	2009
Department: Operations and Infrastructure		02	04	06	2014
		03	15	12	2017
		04	12	09	2018
		05	26	10	2018
		06	31	10	2018
Approved by: Director of Operations and Infrastructure	Contact Position for information: Quality Management System Coordinator				

Objective

The following procedure is a guide for Water/Wastewater Division staff to the protocol for communications and to ensure that communication of the QMS is carried out.

An internal Contact List is found on page 26 of the 2021 Emergency Response Plan. An emergency contact list is found on pages 28-29 in the 2021 Emergency Response Plan.

Communication Procedure

1. Communication to Owner

Top management communicates to Council with summary reports and an Annual Drinking Water Report. Relevant aspects of the Quality Management System will be included in the Annual Summary Report to Council.

The reports to Council and resolutions are maintained at the Operations Centre in the reports to Council binder located in the bookcase in the office of the Operations Coordinator and digitally.

2. Communication to Water/wastewater operators

Personnel in the Department of Operations and Infrastructure of the Water/Wastewater Operations Division will be informed of the QMS and any changes or updates to it through meetings when necessary and by way of replacement of documents through the Water/Wastewater Supervisor as set out in OP5. Information sessions for staff shall be conducted to effectively communicate the DWQMS to personnel.

3. Communication to Suppliers

Essential suppliers shall receive relevant information regarding the QMS from the Town, if and when necessary. Top Management will be copied on all relevant communication to essential suppliers. The Water Quality Policy will be included in the cover letter during the agreement and purchase order process.

An essential suppliers List is found on page 27 of the 2018 Emergency Response Plan.

4. Communication to public

Consumers (the public) will be informed of relevant aspects of the QMS as part of the Annual Drinking Water Report. The Town of Georgina's QMS Policy is posted at the Civic Centre, at the Operations Centre and at the Water and Wastewater Operations facility. It can also be viewed on the Town's [website](#) on the Drinking Water Reports webpage.

The QMS Representative shall use the communication checklist to document how relevant aspects of the Quality Management System are communicated.

 GEORGINA	Table 5
TOWN OF GEORGINA'S COMMUNICATION CHECKLIST	

ISSUE	COUNCIL		TOP MANAGEMENT		WWW SUPERVISOR/ORO		OPERATORS		ESSENTIAL SERVICES & SUPPLIERS		PUBLIC		NOTES
	<input type="checkbox"/>	DATE	<input type="checkbox"/>	DATE	<input type="checkbox"/>	DATE							

	<input type="checkbox"/>												
	<input type="checkbox"/>												
	<input type="checkbox"/>												
	<input type="checkbox"/>												
	<input type="checkbox"/>												
	<input type="checkbox"/>												

13. Essential supplies and services

During implementation of the QMS, the Implementation Team identified all supplies and services, which were determined to be essential for the delivery of safe drinking water.

The Town's Essential Supplies and Services List is provided on page 27 of the Emergency Response Plan (Appendix A) and is reviewed annually by the Water/Wastewater Supervisor (or designate), Operators and the QMS Representative to ensure that it is accurate and up-to-date. Phone numbers, fax numbers and contact names are included on the list to ensure procurement of services.

Supplies used in the maintenance, repair or operation of the Town's drinking water system must meet the requirements of the DWWP 101-301 Issue #3.

See Procedure OP13 – Essential supplies and services

Subject: Procedure No. OP13 – Essential Supplies and Services	AUTHORITY: Drinking Water Quality Management Standard (DWQMS) Version 2.0				
Element: DWQMS Element #13 – Essential Supplies and Services	Pages: 2	Rev. #	DD	MM	YYYY
Department: Operations and Infrastructure		01	13	07	2009
		02	04	06	2014
		03	15	12	2017
		04	12	09	2018
05	26	10	2018		
Approved by: Director of Operations and Infrastructure	Contact Position for information: Quality Management System Coordinator				

Objective

The following procedure is a guide for Water/Wastewater Division staff to the protocol for the means of procuring essential supplies and services.

Essential supplies and services procedure

1. Agreements will be sent to all companies identified on the Essential Supplies and Services List found on page 27 of the Emergency Response Plan.
2. Signed agreements will be returned and a purchase order will be issued ensuring procurement. All signed agreements and purchase orders will be retained at the Civic Centre in a labeled binder in the bookcase in the office of the Operations Coordinator.
3. Purchase orders ensure the availability of supplies during normal business hours. To ensure procurement after hours, an emergency contact list can be found on pages 28 and 29 of the Emergency Response Plan. Waterworks staff can use this list request supplies, staff, and equipment from neighboring municipalities in case of an emergency scenario.
4. Licensed operators will review the quality of essential supplies in as much as they may affect drinking water quality.
5. Licensed operators shall oversee service providers in as much as the service they provide may affect drinking water quality.
6. The Water/Wastewater Supervisor (ORO) and the QMS representative (DWQMS Compliance officer) will review the quality of essential supplies and services annually, and shall include;

Supplies:

Availability
Quality of supplies
Updated contact information
Pricing

Services:

Availability and response time
Quality of workmanship
Updated contact information
Pricing

Any relevant changes will be documented in Table 5 as described in Procedure Op12 (Procedure for Communication).

14. Review and provision of infrastructure

The Water Distribution System infrastructure consists of two booster stations, monitoring equipment, watermains, valves, hydrants, meters and service connections to the customer's property lines.

The following Procedure OP14 will document the process for reviewing the adequacy of infrastructure necessary to operate and maintain the Town of Georgina (Keswick – Sutton) Drinking Water Systems such that;

- a) The Town ensures that the adequacy of infrastructure necessary to operate and maintain the system is reviewed at least once every calendar year, and
- b) The Town considers the outcomes of the risk assessment documented in Element 8; risk assessment outcomes

The Operations and Infrastructure Department will communicate the findings of the infrastructure review to the owner.

See Procedure OP14 – Review and provision of infrastructure

Subject: Procedure No. OP14 – Review and provision for infrastructure	Authority: Drinking Water Quality Management Standard (DWQMS) Version 2.0				
Element: DWQMS Element #14 – Review and provision for infrastructure	Pages: 2	Rev. #	DD	MM	YYYY
Department: Operations and Infrastructure		01	13	07	2009
		02	31	01	2011
		03	04	06	2014
		04	05	12	2017
		05	12	09	2018
		06	01	06	2019
	07	29	01	2020	
Approved by: Director of Operations and Infrastructure	Contact Position for information: Quality Management System Coordinator				

Objective

The following procedure was developed to document how infrastructure needs will be identified and communicated to the owner.

Review and provision of infrastructure procedure

1. The annual risk assessments (Elements 7 and 8) will identify the operations and maintenance requirements, and infrastructure needs for the system. The Water Operations Division will assess the performance status of the infrastructure through water quality trends and customer complaints. The assessment management team review of relevant hydraulic models of the system, servicing master plans, development applications, and other growth related documents in conjunction with Town’s Development Services Department, the Regional Municipality of York representatives, and consulting advisors (Engineering Firm) as appropriate. See file W.0.40 – infrastructure – provisions, maintenance, rehabilitation (Elements 14 and 15).
2. During annual budget preparations the Director of Operations and Infrastructure (top management), the Manager of Operations, and the DWQMS Compliance officer (QMS Representative) will review the Town of Georgina’s infrastructure necessary to operate and maintain the Keswick-Sutton Distribution System. Through this review, all requirements will be outlined and delivered to the owner. An annual meeting will be held with all top management (and director level management) regarding the review and provision for infrastructure.

The needs of the infrastructure deemed necessary to operate and maintain the Town of Georgina’s water distribution system will be prioritized and the Director of Operations and Infrastructure will communicate these needs to Council (owner) during the budget review and approval process.

15. Infrastructure maintenance, rehabilitation and renewal

The following routine planned maintenance is conducted on the Town of Georgina's Water Distribution System:

Annual programs have been developed for the routine inspections of the Connell and Joe Dales (Simcoe Landing) Booster stations.

All Maintenance activities are scheduled and communicated to staff through the Water/Wastewater Supervisor. The effectiveness of the Maintenance Programs is reviewed by the QMS Representative and the Water/Wastewater Supervisor as part of the preparation for budget expenditures and is accomplished through Water Quality Sampling results, and equipment repair/rehabilitation information from the previous years. Watermain and equipment replacement is conducted on an as-needed basis.

Top management is to ensure that a long-term forecast of major maintenance including large-scale rehabilitation/replacement projects and capital projects are reviewed at least once every calendar year, and a summary of these programs is communicated to Council during the budget review process.

16. Sampling, testing and monitoring

- (a) Sampling, Testing and Monitoring procedures for the distribution system can be found in the Standard Operating Procedures Manual.

WWW1 - Drinking Water Sampling and Testing – Microbiology

WWW2 - Drinking Water Sampling and Testing – Chemical

WWW3 - Drinking Water Sampling and Testing - Lead

WWW4 - Water Quality Monitoring

WWW5 - Adverse Water Quality Reporting

WWW4 – Water Quality Monitoring Procedure was developed to monitor the conditions most challenging to our distribution system and includes dead end watermains and low flow areas.

- (b) The Town receives treated water from York Region by means of two water treatment plants. York Region has developed a QMS Operational Plan and their sampling procedures are carried out as per legal requirements in Ontario Regulation 170/03 and 169/03.
- (c) Sampling, testing and monitoring results are communicated to the owner through the annual report prepared by the DWQMS Compliance officer/QMS Representative, the Environmental Services Manager and the Director of Operations and Infrastructure.

17. Measurement and recording equipment calibration and maintenance

All equipment are inspected by Operators for performance verification and is set out in WWW7 – Field Test Kit Calibration and Standards Check. The portable chlorine analyzers are calibrated according to the manufacturer’s procedure. The calibration of the water quality field testing equipment is contracted to qualified suppliers. Calibration of all flow meters, pressure transducers and level transducers are contracted to qualified service providers. The Water/Wastewater Supervisor schedules all annual inspections for equipment calibration and maintenance. Maintenance/equipment record inspection reports are kept at the Water/Wastewater Operations facility in the file room.

Emergency Management

The Town of Georgina has an Emergency Plan in accordance with the Civil Management Protection Act.

The Department of Operations and Infrastructure, Water/Wastewater Operations Division has also prepared an Emergency Response Plan (ERP) for water quality related emergencies. The ERP can be found in Appendix A of the Operational Plan.

The procedure the Town uses to maintain a state of emergency preparedness is our Emergency Response Plan.

See Appendix A – Emergency Response Plan (ERP)

18. Internal audits

Internal audits will be conducted annually to ensure that the Quality Management System (QMS) conforms to the requirements of the Drinking Water Quality Management Standards (DWQMS). These requirements include ensuring the QMS has been effectively implemented, properly maintained, and is to occur at least once every calendar year.

See Procedure OP19 – internal audits

Subject: Procedure No. OP19 – internal Audits	Authority: Drinking Water Quality Management Standard (DWQMS) Version 2.0				
Element: DWQMS Element #19 – internal Audits	Pages: 2	Rev. #	DD	MM	YYYY
Department: Operations and Infrastructure		01	13	07	2009
		02	04	06	2014
		03	05	12	2017
		04	12	09	2018
	05	01	06	2019	
Approved by: Director of Operations and Infrastructure	Contact Position for information: Quality Management System Coordinator				

Objective

The following procedure is a guide for Water/Wastewater Division staff to the protocol of internal audits.

Internal audit procedure

The Town of Georgina has or may have staff who are trained in internal auditing of DWQMS. The QMS Coordinator had internal auditing training for the drinking water system and the auditing skills will be refreshed frequently in the future.

There are external contract service providers who also have trained internal auditors. These services will be used if needed.

1. Audit criteria

- Internal audits of the QMS will be conducted by person(s) who meet the criteria of internal auditors
- All lead auditors shall be qualified by having attended a recognized 2-day MOE-approved training course
- A lead auditor shall be identified prior to conducting all audits

2. Frequency and scope

- Internal audits are to be conducted at least once every calendar year
- The scope of the audit shall evaluate the conformity of the QMS with the requirements of the DWQMS
- All internal audits shall consider previous internal and external audit results

3. Audit structure and record-keeping requirements

Internal audits conducted shall be completed using the following guidelines to structure the audit and provide suitable record keeping:

1. Start an audit file, which clearly identifies auditee, auditor(s) and designates a lead auditor.
2. Select an audit date.
3. Select the type of audit (elemental or process)
4. Preparation for audit as per approved internal auditor training.

5. The audit checklist shall be created and maintained by the lead auditor as a guideline for record-keeping purposes and for conducting the interviews and document review during the audit.
6. Lead auditor conducts the opening meeting.
7. Lead auditor conducts the audit and identifies all non-conformances
8. Lead auditor conducts the closing meeting and presents all findings to the audit team
9. Lead auditor prepares audit report identifying non-conformances and opportunities for Improvement, issuing corrective action requests (CARs).
10. QMS representative is responsible for and documents follow-up of CARs.
11. CARs are responded to, and the response is documented and included in management review.
12. The internal audit file is closed when CARs responses are submitted for management review.
13. Internal audit files will be stored at the waterworks facility and filed in file number W.0.29. Internal audit files will be retained for 10 years and disposed of by the Infrastructure and Operations Manager at year-end. Disposal of internal audit files will occur through use of the Town's Confidential Paper Shredding and Recycling System.

19. Management review

The procedure defines the management review process, which will evaluate the continual suitability, adequacy and effectiveness of the QMS.

See Procedure OP20 – Management review

Subject: Procedure No. OP20 – Management review	Authority: Drinking Water Quality Management Standard (DWQMS) Version 2.0				
Element: DWQMS Element #20 – Management review	PAGES: 2	Rev. #	DD	MM	YYYY
Department: Operations and Infrastructure		01	13	07	2009
		02	04	06	2014
		03	05	12	2017
		04	12	09	2018
	05	01	06	2019	
Approved by: Director of Operations and Infrastructure	Contact Position for information: Quality Management System Coordinator				

Objective

The following procedure was developed to document the protocol for management review.

Management review procedure

The Director of Operations and Infrastructure shall:

- a) Ensure the management review be conducted once every calendar year;
- b) Considers the results of previous management reviews and identify deficiencies and action items to address the deficiencies;
- c) Provide a record of any decision and action items related to the management review including the personnel responsible for delivering the action items and the proposed timelines for their implementation;
- d) Reports the results of the management review, the identified deficiencies, decisions and action items to the owner (if relevant);
- e) The annual management review shall consider:
 1. MOE inspection report
 2. Incidents of regulatory non-compliance
 3. Incidents of adverse drinking water tests
 4. Annual Drinking Water Report including all analytical records chlorine/residual flushing logs, daily chlorine residuals logs and lead sampling results as mandated by the Ministry of the Environment
 5. Deviations from critical control limits and response actions
 6. The efficiency of the risk assessment process
 7. Results of internal and third-party audits
 8. Results of emergency response testing and training
 9. Follow-up on action items from previous management reviews
 10. Status of managements action items (if any) identified between reviews
 11. Changes in resource requirements, infrastructure, process, personnel, the DWQMS or regulations that could effect the QMS
 12. Operational Performance Data :

- i) Number of watermain breaks
 - ii) Number of emergency repairs
 - iii) Number of planned repairs
 - iv) Fire hydrants repairs/replacements
 - v) Review of fire hydrant summaries from Georgina Fire and Rescue Services – these logs are to be kept at the Water and Wastewater Operations facility
 - vi) Curb stop repairs/replacements
 - vii) Locations as to where high and low chlorine residuals found
13. The resources needed to maintain the QMS
 14. Operational plan status, content changes and updates
 15. Staff suggestions
 16. Results of infrastructure review
 17. Consumer feedback

During the review of the above, deficiencies shall be identified and action items shall be delegated to correct the deficiency. All deficiencies are to be documented along with personnel responsible for correcting the deficiency. Such action items shall be clearly documented including what the deficiency is, how it is to be corrected, who is responsible to lead the corrective measure and the timeline necessary to correct the deficiency.

The results of the management review including identified deficiencies, decisions and action items shall be summarized and presented to Town Council along with the annual summary report.

20. Continual improvement

The Town of Georgina shall strive to continually improving the effectiveness of the Quality Management System by implementing and conforming to the Procedure OP21 – Continual Improvement.

Continual improvements that are made to the QMS shall be summarized in **Appendix B** of the operational plan and provides justification for the benefit of maintaining such a system. These continual improvements are important to the Town of Georgina’s commitment to providing safe drinking water to the consumer.

Subject: Procedure No. OP21 – Continual improvement	Authority: Drinking Water Quality Management Standard (DWQMS) Version 2.0				
Element: DWQMS Element #21 – Continual improvement	PAGES: 2	Rev. #	DD	MM	YYYY
Department: Operations and Infrastructure		01	12	09	2018
		02	04	10	2018
		03	20	10	2018
		04	12	09	2018
	05	01	06	2019	
Approved by: Director of Operations and Infrastructure	Contact Position for information: DWQMS Compliance officer (Quality Management System Representative)				

Objective

The following procedure was developed to the protocol of tracking and measuring Continual Improvement.

Continual improvement

The Town has developed a procedure for tracking and measuring Continual Improvement of its Quality Management System by:

1. Reviewing and considering, at least every 36 months, the applicable best management +
2. Practices (BMP's), including any published through the MOECC, available at ontario.ca/drinkingwater
3. Identifying and documenting, in Appendix B of the operational plan, the cause, effect, and management efforts of corrective actions, non-conformances, and best management practices acknowledged through MOECC inspections, internal and external audits, and through management reviews, risk assessments and infrastructure reviews.
4. Document, in Appendix B, the Actions taken to correct the non-compliance, non-conformity (or other continual improvement task) and prevent re-occurrence.
5. Document preventative action (if required) to eliminate the occurrence of potential non-conformities in the Quality Management System.
6. Continual improvement shall be communicated to top management and the owners of the DWS during each annual management review.

Areas identified which provide continual improvement opportunities include:

- Internal audits and the corresponding corrective actions
- External audits and the corresponding non-conformances (NCR's)
- MOECC inspections and associated non-compliances/corrective actions requests (CAR's)

- Action Items brought forth through completion of management reviews, risk assessments and infrastructure reviews
- Review of best management practice (BMP's) recommendations, including those available through ontario.ca/drinkingwater

Continual improvement and root cause analysis

As issues arise within the distribution system, operational plan or QMS, the continual improvement tracking spreadsheet gets updated with the following information:

1. Name of issue and continual improvement # (CINo.yyyy-####)
2. Issue Date (yyyy-mm-dd)
3. Document/record issue class and issue sub-class from dropdown menu;
 - BMP – Best management practice
 - internal
 - MECP recommendation
 - Compliance
 - AWQI
 - General
 - MECP inspection
 - Health and safety
 - Preventative
 - Conformance
 - General
 - Internal audit
 - External audit
 - Health and safety
 - Preventative
 - Distribution
 - infrastructure
 - Process
 - Emergency incident
 - Preventative
 - OFI – Opportunity for improvement
 - Internal/staff
 - Management
 - Feedback
 - Customer calls
 - Management review
 - Risk assessment
 - Staff
 - Other
4. Document/record issue description
5. Document/record person (s) responsible for completing continual improvement tasks

6. Document/record action description from the dropdown menu:
Action description
 - Corrective action
 - Emergency
 - Preventative action
 - Improvement
 - Not applicable
7. Document/record action taken, and any comments
8. Assign due date
9. Once complete, assign date closed, and sign off on continual improvement task