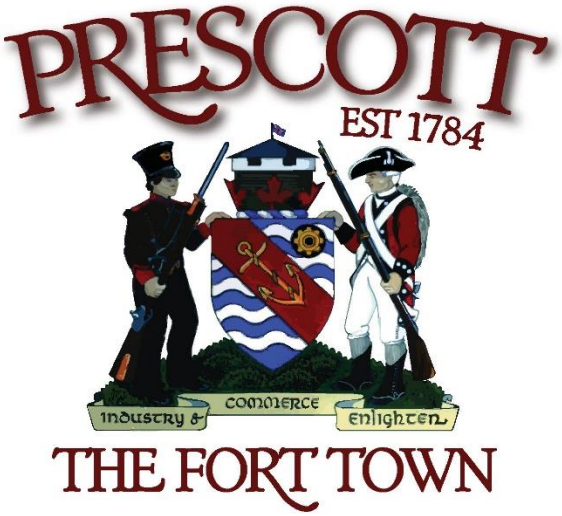
DWQMS

The Town of Prescott



2.0 Operational Plan

In compliance with

The Drinking Water Quality Management Standard

DISCLAIMER STATEMENT

This Operational Plan is designed for the exclusive use of the Town of Prescott. As stated in Section 17 of the Safe Drinking Water Act, 2002, "all operational plans for a drinking water system remain the property of the owner of the system, irrespective of who prepares or revises the plans. 2002, c. 32, s. 17 (1)." Therefore, this Operational Plan is the property of the Town of Prescott.

This Operational Plan has been developed with the Town's operating practices in mind and utilizing the Town's personnel to implement it. Any use which a third party makes of this Operational Plan, or any part thereof, is the responsibility of such third parties. The Town of Prescott accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this Operational Plan or any part thereof.

Any documents developed by the Town, which are referred to in this Operational Plan, including but not limited to the System Level Documents and other policies, protocols, documents, and records remain the property of the Town.

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1. QUALITY MANAGEMENT SYSTEM

1.1 OBJECTIVES AND SCOPE

The objectives of the Town of Prescott Quality Management System (QMS) are to:

- Establish policies and objectives with respect to the effective management and operation of the water distribution system
- Understand and control the risks associated with activities and processes related to the water distribution system
- Achieve continuous improvement of the QMS and the water system performance

This Operational Plan applies to all activities, processes, and practices related to the provision of drinking water by the Town of Prescott within the distribution system.

1.2 ACTIVITY DESCRIPTION

This Operational Plan defines and documents the Quality Management System for the Town of Prescott Water Distribution System, which is owned and operated by the Town of Prescott. It sets out the policies and procedures with respect to quality management in accordance with the requirements of the Province of Ontario's Drinking Water Quality Management Standard (DWQMS).

The numbering of sections in this Operational Plan directly corresponds to the numbering of the elements of the DWQMS.

Figure 1-1 below illustrates the structure of the Town's QMS documentation. This "Documentation Pyramid" is based on four levels. It is important to note that not all 21 elements of the DWQMS require four levels of documentation (i.e. all information related to some DWQMS elements might be fully contained within the first or second levels of documentation). Each of the four documentation levels is explained below.

Figure 1-1 – DWQMS Documentation Pyramid

1.2.1 Operational Plan

The Operational Plan presents an overview of the QMS and makes reference to all applicable System Level Documents (SLDs), reference documents, records, etc, as relating to the 21 elements of the DWQMS. This document contains:

- Statements about the Town's commitment to quality
- The Quality Policy
- Information about responsibilities of personnel for quality related processes
- References to other quality documents not contained in the Operational Plan
- High-level information about key areas of the quality system and the overall operation of the Town's water distribution system

1.2.2 System Level Documents

System Level Documents (SLDs) document general procedures and describe who is responsible for completing the procedure in question, when the procedure is applicable, what documentation is needed, etc. SLDs may also refer to other procedures that contain more specific information. SLDs are located in this Operational Plan binder, following the corresponding Operational Plan section.

1.2.3 Standard Operating Procedures

Standard Operating Procedures (SOPs) detail how an activity is carried out, specifying the tools and materials to be used (if any), locations, specific steps, etc. These procedures are included in the *Prescott Water Distribution System Contingency Plan* and the *Maintenance and Operating Procedures Manual,* both of which are included in the binder containing this Operational Plan.

1.2.4 Records and Forms

This documentation level includes all the records and forms required to demonstrate compliance of the QMS and to track performance. These records document the results of activities carried out according to procedures described in the SLDs and SOPs. Records include calibration records, water quality test results, etc. The location of the records and completed forms are stated in *SLD-05B- Control of Records.* The sample forms and other templates are located in this Operational Plan binder, following the corresponding Operational Plan section.

1.3 ASSOCIATED PROCEDURES AND DOCUMENTATION

Prescott Water Distribution System Contingency Plan

Maintenance and Operating Procedures Manual

SLD-05B- Control of Records

1.4 REFERENCES

Drinking Water Quality Management Standard — Element 1

2. QUALITY MANAGEMENT SYSTEM POLICY

2.1 OBJECTIVES AND SCOPE

The Quality Management System Policy establishes the principles and commitments of the Town of Prescott with regards to the maintenance and continuous improvement of the QMS. The QMS Policy is the foundation of the QMS and it relates to all activities, processes, and practices involved in the provision of safe drinking water by the Town of Prescott within the distribution system.

2.2 ACTIVITY DESCRIPTION

The QMS Policy shall be communicated to all staff, suppliers and to the public via the Town's website.

For additional information regarding the approach by which the QMS Policy shall be communicated to all stakeholders see Section 12, Communications.

2.2.1 QUALITY POLICY

The Town of Prescott's Drinking Water Quality Management *Policy* is located in this Operational Plan binder following this section.

2.3 ASSOCIATED PROCEDURES AND DOCUMENTATION

Town of Prescott Quality Policy

2.4 REFERENCES

Drinking Water Quality Management Standard — Element 2

DRINKING WATER QUALITYMANAGEMENT POLICY

Provide a continuous and reliable supply of water
Review, maintain and continually improve the Quality Management System
Educate the public on the importance of water
Supply water that is clean and safe to drink
Comply with all applicable legislations and regulations
Offer a sustainable drinking water supply
Track performance of the water system
Target to meet the highest standards of quality

3. COMMITMENT AND ENDORSEMENT

3.1 OBJECTIVES AND SCOPE

The commitment and endorsement statement establishes the commitment by Top Management and the Owner to the implementation and maintenance of an effective QMS. It refers to the QMS and all activities associated with its implementation and maintenance as described in this Operational Plan and related documentation.

3.2 ACTIVITY DESCRIPTION

The commitment and endorsement statement is included in the *Town of Prescott Letter of Commitment,* which is located in this Operational Plan binder, following this section. Prior to signing the letter of commitment, the Owner and Top Management are provided with the Operational Plan to review. The need for resources required to maintain and continually improve the QMS is communicated and carried out through Management Review (refer to Section 20, Management Review). The commitment and endorsement is to be updated any time the owner representative and/or top management representative changes.

3.3 ASSOCIATED PROCEDURES AND DOCUMENTATION

Town of Prescott's Letter of Commitment

3.4 REFERENCES

Drinking Water Quality Management Standard — Element 3

Town of Prescott

Letter of Commitment

The Town of Prescott is committed to ensuring that a Quality Management System (QMS) is developed and implemented for the Town's drinking water distribution system in accordance with the requirements of the Drinking Water Quality Management Standard (DWQMS).

The Owner and Top Management are committed to maintaining the QMS and ensuring that all resources required for its maintenance and continual improvement are identified and provided.

The Owner and Top Management are also committed to ensuring that the Operating Authority is aware of all applicable legislative and regulatory requirements governing the provision of safe drinking water.

To promote awareness and understanding of the QMS, The Town of Prescott's QMS will be communicated to relevant parties according to the procedures outlined in the operational plan

The Operational Plan is endorsed and supported by the Town of Prescott's Top Management and Owner.

X

Owner Representative

Date: August 15, 2019

X

Top Management

Date: August 15, 2019

4. QUALITY MANAGEMENT SYSTEM REPRESENTATIVE

4.1 OBJECTIVES AND SCOPE

The QMS Representative is generally responsible for the upkeep of the QMS as well as ensuring that Town staff are aware of all applicable legislative and regulatory requirements relevant to their duties regarding the provision of safe drinking water. The description below details the roles and responsibilities of the QMS Representative, as related to the maintenance of the QMS.

4.2 ACTIVITY DESCRIPTION

Dion Willcott (ORO/OIC) & Matthew McCaw (ORO/OIC) have been appointed as the QMS Representatives by the Town of Prescott. The QMS Representative is authorized and responsible for managing all processes and procedures associated with the operation and maintenance of the QMS. The QMS Representative shall discuss the performance of the QMS and continual improvement activities with members of Top Management. Section 21 of this Operational Plan details the Town's continual improvement activities. Clear communication channels between Top Management and the QMS Representative are required to deal with issues as they arise.

The QMS Representative shall ensure that current versions of documents related to the QMS are in use. The procedures outlined in Section 5, Document and Records Control shall be used to ensure that all personnel have access to the most current versions of all required procedures and documents.

It is also the responsibility of the QMS Representative to promote awareness of the QMS to Drinking Water personnel involved in the provision of safe drinking water. QMS awareness is promoted through training and audits. The QMS policies and procedures shall be presented to personnel in internal training sessions and reviewed during internal audits, and management review meetings with Top Management. All training sessions, internal audits, and management review meetings shall be coordinated by the QMS Representative.

A detailed description of the roles and responsibilities of the QMS Representative is included in Section 9, Organizational Structures, Roles, Responsibilities and Authorities.

4.3 ASSOCIATED PROCEDURES AND DOCUMENTATION

Operational Plan — Sections 5, 9, 10, 12, 19, 20, and 21.

4.4 REFERENCES

Drinking Water Quality Management Standard — Element 4

5. DOCUMENTS AND RECORDS CONTROL

5.1 OBJECTIVES AND SCOPE

This Section outlines the procedures followed to ensure that documents and records pertaining to the upkeep and management of the QMS are maintained and controlled. This Section applies to all documents and records that are described within this Operational Plan and its referenced SLDs.

5.2 ACTIVITY DESCRIPTION

Procedures for documents and records control have been established to describe the methods and activities for ensuring that documents and records are properly managed. These are included in *SLD-05A- Control of Documents* and *SLD-05B- Control of Records.*

Documents and records shall be stored, protected, retained, and disposed of in accordance with the above mentioned SLDs. Any modifications to documents shall be recorded as described in the procedure. Records cannot be modified. The QMS Representative shall ensure that only the current versions of documents are being used at all times.

5.3 ASSOCIATED PROCEDURES AND DOCUMENTATION

SLD-05A- Control of Documents

SLD-05B- Control of Records

5.4 REFERENCES

Drinking Water Quality Management Standard — Element 5

SLD — 05A — CONTROL OF DOCUMENTS

Purpose

This procedure describes the process for managing documents for the Town of Prescott Drinking Water Distribution System and its Quality Management System (QMS) as related to the provision of safe drinking water. Documents are to be kept current, legible, readily identifiable, and retrievable. This procedure also details the process for storing, protecting, retaining, and disposing of documents.

Scope

This procedure is applicable to all documents that are described within the Operational Plan and/or its referenced SLDs.

Definitions

Documents are the procedures, forms, and templates used to manage the drinking water distribution system and the QMS, which can, if needed, be amended or changed.

Controlled Documents are documents which are managed in accordance with the conditions of this procedure.

Internal Documents are any documents created/generated within the organization including policies, procedures, work instructions, forms, etc. Internal documents can be in any format or media.

External Documents are any documents generated/provided by an outside stakeholder for use within the organization including supplier/vendor specifications, manuals, standards, bylaws, regulations, etc. External documents can be in any format or media.

Retention Period is the length of time that a document must be retained by the Town, starting from the date of issue or from the point of time when a QMS document is replaced by a new or amended document.

Procedure

The QMS Representative is responsible for ensuring that the current version of all documents is being used and that the policies and procedures outlined in this SLD are being followed.

QMS Document Control

Tables 1 and 2 include a list of QMS documents that are maintained by the QMS Representative. The list includes document title and the designated document location.

Table 1 Town of Prescott Water Distribution System - Internal Documents

Item	Location
Operational Plan Binder	QMS Representative's office
Operational Plan, Annual Owner Distribution Copy	Distributed to Mayor and Council, returned to QMS Representative's Office
Operating Procedures	Water Office
Prescott Water Distribution System Contingency Plan	Water Office
Distribution System Drawings	Water Office
On-Call Schedule	Water Office

Table 2 Town of Prescott Water Distribution System - External Documents

Item	Location
Binder: Regulations and Legislation, Ontario Drinking Water Standards, Procedure for Disinfection	Water Office
Certificate of Approval, Permit To Take Water	Water Treatment Plant
Water Distribution Facility License	Water Office
Operators' Licenses	Water Office
Water Treatment Plant Operational Plan	Water Treatment Plant
Manufacturer's Recommendations for calibration/maintenance of measuring/recording equipment	Water Office
Schedule"C" Subject System Description Form	Operational Plan (Element 6)

Document Development and Changes to Documents

Any employee involved in the provision of safe drinking water within the distribution system may request that a document be created or request a change to an existing document. Water Employees discuss changes to the QMS documents and implement as soon as possible.

If the document already exists then the QMS Representative will advise the employee of the title and location of the document. If the document exists only in part, then the QMS Representative will determine if modifications to the existing document would add value to the organization.

If the requested document does not exist, the QMS Representative will determine if the requested documentation adds value to the QMS. In making this determination, the QMS Representative may at his/her discretion, seek input from other sources.

If it is determined that the requested document or change is deemed unnecessary or does not add value to the QMS then the QMS Representative shall document the rationale for rejecting the request.

If the requested document is to be developed and added to the QMS, then the QMS Representative will develop/change the suggested document.

All QMS related documents created by the Town (or by others as directed by the QMS Representative) will be approved by the QMS representative before release.

The QMS representative will be responsible for ensuring that copies of the new or changed document are distributed. Obsolete documents (due to changes) will be collected and destroyed.

Documents are kept legible by the use of word processors. Documents are kept current through a review of the currency of all documents annually by the QMS representative. Document versions will be controlled by date. Documents with the most recent date should be considered the most current.

If a document has been released, then it is the most up to date version, until a new version is released.

The QMS Representative will review the currency of all documents annually.

Associated Documents

SLD-05B-Control of Records

References

Operational Plan Section 5, Documents and Records Control

Records

Not applicable

SLD-05B-CONTROL OF RECORDS

Purpose

This procedure describes the process for managing records for the Town of Prescott Drinking Water Distribution System and its QMS. Records are to be kept current, legible, readily identifiable, and retrievable. This procedure also details the process for storing, protecting, retaining, and disposing of records.

Scope

This procedure is applicable to all records that are generated from processes and activities that are described within the Operational Plan and/or its referenced SLDs.

Definitions

Records are any documents that can serve as objective evidence of a process transaction (i.e. documents bearing signatures, completed form fields, reports, etc.). Examples include sampling and monitoring results/reports completed applications, completed internal audits, meeting minutes, etc. Records cannot be changed or amended.

Retention Period is the length of time that a record must be retained by the Town.

Procedure

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

QMS Records Control

All QMS records are retained for a minimum of 10 years at the location indicated in Table 1. However, if a QMS record is also a requirement of 0. Reg. 128/04 and/or 170/03, then the retention time will be in accordance with the regulation. Once the record retention time has been reached, records may be destroyed, at the QMS Representative's discretion.

The following items in Table 1 constitute the QMS records for the water system.

Table 1 Town of Prescott Water Distribution System - QMS Records

General Requirements

The following points are general requirements for records:

- The record title will be clearly visible and legible.
- Manual records will be legible. Pencil or any other erasable marker will not be used to record process or product information or data.
- QMS records will be filed by type and by date.
- QMS records will be stored in such a manner as to prevent deterioration.
- All manual records will show the name or initials of the recorder and the date (and time if appropriate), when the record was generated.

The QMS Representative is responsible for control of records within their respective groups

Associated Documents

SLD-05A-Control of Documents

References

Operational Plan Section 5, Documents and Records Control

Records

Not applicable

6. DRINKING WATER SYSTEM

6.1 OBJECTIVES AND SCOPE

This Section presents an overview of the main components of the Town of Prescott's water distribution system.

6.2 ACTIVITY DESCRIPTION

The Town of Prescott is the Owner and Operating Authority of the water distribution system. The entire distribution system receives water from the Prescott Water Treatment Plant, which is owned by the Town of Prescott and operated by the Ontario Clean Water Agency (OCWA). The Town of Prescott also supplies water to the Township of Edwardsburgh Cardinal Industrial Park.

The treatment plant is located on the south west edge of Prescott along the north shore of the St. Lawrence River. It is a direct filtration surface water treatment facility with a total design capacity of 8,200 m^3 per day. It obtains raw water from St. Lawrence River. A detailed description of the water treatment plant and the characteristics of the raw water source is included in the *Operational Plan for the Prescott Water Treatment Plant,* as developed by OCWA. The location of the *Operational Plan for the Prescott Water Treatment Plant* is stated in *SLD-05A- Control of Documents.*

The distribution system includes a 2,272 m^3 elevated storage tank, which is located on Wood Street and supplies water via a 300 mm diameter feed line. The level of the tank is monitored, and the signal is transmitted to the water plant's SCADA system. The high lift pumps at the water treatment plant operate based on the water level in the elevated tank.

There is a water meter prior to the distribution to the Township of Edwardsburgh Cardinal Industrial Park.

A schematic of the distribution system is available within the water office at the Public Works building.

A critical upstream process that is relied upon is the supply of safe drinking water and the operation of the upstream water treatment plant. There are no downstream critical processes relied upon.

Below is a brief description of the raw water received at the Prescott water treatment plant (operated by OCWA).

General Characteristics
The raw water source for the treatment plant is the St. Lawrence River. The water from the St. Lawrence River is typically low in turbidity and slightly basic. Temperature fluctuates significantly through the seasons ranging from approximately 0 °C in the winter to as high as 22.2 °C during the summer. Bacteriological analysis of the raw water indicates a source of relatively good quality. The results of chemical analyses are consistently below the Ontario Drinking Water Quality Standards.

Raw Water Characteristics at Intake

Characteristic	Minimum	Maximum
Temperature (°C)	0	22.2
Turbidity (NTU)	0.42	0.87
pH	7.90	8.40
E. coli (CFU/100 mL)	0	11
Total Coliforms (CFU/100 mL)	0	>200

Common Fluctuations

Raw water turbidity increases during spring runoff, algae blooms and strong West winds. During these events floc characteristics are monitored and alum dosage is adjusted for maximum filter efficiency.

Water temperature changes significantly from winter to summer. The rate of backwashes must be increased with colder water temperatures to ensure adequate filter bed expansion during backwash.

Threats

Potential sources of raw water contamination include agricultural runoff, spills from cargo vessels, and international upstream wastewater discharges from municipalities and local industry. There are no downstream processes that affect the provision of safe drinking water to the Town of Prescott.

Operational Challenges

On occasion, strong west winds during early spring dislodge large quantities of stringy algae. This results in high raw water turbidity and the potential for blocked traveling screens and greatly reduced filter runs. To compensate, backwash frequency must be increased for both the screens and filters. Excessive filter backwashes require an increased use of process water and therefore, a decrease in water production capacity if the situation is prolonged.

6.3 ASSOCIATED PROCEDURES AND DOCUMENTATION

Operational Plan for the Prescott Water Treatment Plant

Town of Prescott Water Distribution System Map

SLD-05A- Control of Documents

6.4 REFERENCES

Drinking Water Quality Management Standard — Element 6

7. RISK ASSESSMENT PROCEDURE

7.1 OBJECTIVES AND SCOPE

This Section refers to the methodology and approach taken by the Town of Prescott personnel involved in the provision of safe drinking water to identify, assess and where possible, mitigate and/or eliminate potential risks within the drinking-water distribution system.

The risk assessment process applies to the entire Town of Prescott's Drinking Water Distribution System. The focus of the assessment is on risks to water quality and water quantity (capacity).

7.2 ACTIVITY DESCRIPTION

A risk assessment process has been established to collectively identify, assess, rank, and prioritize potential drinking water related hazards and related risks. This risk assessment process is conducted annually. A review of the assessment is done annually prior to Management Review (refer to Section 20, Management Review).

The methodology and the approach taken to conduct the risk assessment are described in detail in *SLD-07 Risk Assessment and Risk Assessment Outcomes.*

7.3 ASSOCIATED PROCEDURES AND DOCUMENTATION

SLD-07- Risk Assessment and Risk Assessment Outcomes

7.4 REFERENCES

Drinking Water Quality Management Standard — Element 7

SLD — 07 — RISK ASSESSMENT AND RISK ASSESSMENT OUTCOMES

Purpose

This document explains the key terminology and methodology used to systematically assess the hazards and associated risks to which the Town of Prescott Drinking Water Distribution System is exposed. This procedure has been developed to describe the process for identifying, assessing and ranking potential drinking water quality hazards, and identifying critical control points, control measures, and monitoring procedures.

This procedure also explains the tasks involved in conducting a review of the risk assessment outcomes. Under the scope of the DWQMS, only hazards related to drinking water safety need to be considered.

Scope

This document and associated documentation applies to all Town of Prescott's practices that relate to the distribution of safe drinking-water and to all personnel involved in these processes. The QMS Representative will be responsible for the application of the process and procedures explained in this document.

Definitions

A **Drinking Water Quality Hazard** is a possible source of danger that may cause drinking water to be unsafe for human consumption. It is a biological, chemical, or radiological agent that has the potential to cause harm.

A **Hazardous Event** is an incident or situation that can lead to the presence of a hazard.

Hazards and hazardous events can result from natural or technological causes, or from human activities.

Four different types of hazards are considered (more than one hazard may be associated to a given hazardous event):

- **Biological Hazards** correspond to biological pathogens that may be present in the water. Waterborne biological hazards include bacterial, viral and parasitic organisms that may occur naturally or may be caused by the introduction of waste and other substances into the environment by humans or other animals. Biological hazards also include substances and particles that cause turbidity, since these can be a source of disease-causing organisms, and can shield pathogenic organisms from the disinfection process.
- **Chemical Hazards** refer to contaminants that may be naturally occurring or may be added or created during the processing of water, and if present at high levels can present negative health effects.

- **Radiological Hazards** include all those substances that may have a negative impact on human health due to their emission of radiation. There are more than 200 radionuclides (radiation emitting substances). Some occur naturally while others are products from human activities such as mining and nuclear energy production. Ingestion of radionuclides in drinking water may cause cancer in individuals exposed and hereditary genetic changes in their children.

- **Capacity Hazards** are factors that affect the distribution system's ability to supply water to its customers and can lead to an interruption to the supply of drinking water.

Control Measures refer to any processes, steps, or contingencies to prevent or reduce a hazard. For clarity purposes, the terms *control and monitoring measures* and *response/mitigating measures* are used for the risk assessment to distinguish between actions to eliminate or reduce the occurrence of the hazardous event before it occurs and to track the change of parameters that are related to the presence of the hazard, and actions to mitigate the effects of the hazardous event once it has occurred, respectively.

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

A **Critical Control Limit (CCL)** is the level of a hazard (or the process variable used to monitor the hazard) at which a Critical Control Point response is initiated.

Risk is a measure of the impact of a hazardous event expressed as a numerical score that includes likelihood, severity and detectability. For this risk assessment, risk is defined as the sum of the likelihood, severity and detectability ratings.

Likelihood is the probability of occurrence of a hazard or hazardous event.

Severity is the magnitude of the effects or consequences of the hazard/hazardous event if the hazard is not controlled. For this risk assessment, only the potential effects on human health will be considered to define severity.

Detectability is a measure of how easy it is to identify the occurrence of a hazard/hazardous event. It contributes to risk since as the detectability of a hazard decreases the more difficult it is for appropriate control measures to be implemented.

Procedure

This section explains the considerations and methodology used to perform each of the tasks involved in conducting a risk assessment.

Assembling the Risk Assessment Team

Performing a risk assessment requires a good knowledge of the system in question, including all aspects of the system from operation and maintenance, management and design. For this reason, the assessment will be conducted by a group of people

with a wide-ranging knowledge of the system, including as a minimum the QMS Representative and ORO/01C.

Selecting the Risk Assessment Approach

The approach taken to conduct the assessment is based on the Hazard Analysis and Critical Control Points. It involves the evaluation of hazardous events for each of the processes/components of the subject system, and the identification of critical control points.

Hazard Identification

The risk assessment is conducted in a series of risk identification workshops during which hazards to water quality are identified, given a score (assessed), and ranked. Control measures already in place are identified, and when necessary, recommendations for new control measures are developed.

The reliability/redundancy of the equipment and infrastructure forming part of the distribution system is considered when identifying hazards or hazardous events and control measures. The effect of equipment failure was determined and assessed when considering high risk areas.

Risk Assessment

A semi-quantitative approach is used to assess risk. That is, risk is expressed as the sum of likelihood, severity, and detectability, each of which is assigned a rating between 1 and 5, depending on qualitative descriptors (see Table 1 below). A high value indicated high risk (e.g. a hazard with a high likelihood, high severity, and low detectability is given the highest score). The likelihood, severity, and detectability ratings are assigned to better reflect the reality of the Town's system and standards of operation. These variables are independent (i.e. an event will not be less severe because it is unlikely).

Table 1 Likelihood, Severity and Detectability Rating System

Description	Likelihood of Hazardous Event Occurring	Rating
Rare	May occur in exceptional circumstances, and has not occurred in a period of over 10 years OR asset is new (within warranty period).	1
Unlikely	Could occur at some time. Historically, has occurred less than once every 5 or 10 years OR asset is refurbished or rebuilt and is therefore in good condition.	2
Possible	Has occurred or may occur once every 2 to 5 years OR Asset is approaching the end of its life cycle.	3

Likely	Has occurred or may occur on a monthly to quarterly or seasonal basis.	4
Very Likely	One or more occurrences on a monthly or more frequent basis OR asset has exceeded its life cycle.	5
Description	**Severity of Hazardous Event Occurring**	**Rating**
Insignificant	Little disruption to normal operation.	1
Minor	Some manageable operation disruption OR Treatment train out of service.	2
Moderate	Significant modification to normal operation but manageable	3
Major	Drinking water advisory OR Possible reduced production and supply.	4
Catastrophic	No water available for distribution and potential negative pressure in the distribution system OR uncontrolled distribution of unsafe water.	5
Description	**Detectability of Hazardous Event Occurring**	**Rating**
Very detectable	Easy to detect. On-line monitoring through SCADA. Continuous operator monitoring.	1
Moderately Detectable	Alarm present but not on SCADA. May require operator to walk by and notice alarm OR Problem is indicated by in- house lab test results.	2
Normally Detectable	Visually detectable on operator rounds or during regular maintenance. Third Party Notification.	3
Poorly Detectable	Visually detectable but not inspected on a regular basis OR not normally detected before problem becomes evident OR Lab tests are not done frequently (e.g. quarterly) OR Only found by chance.	4
Undetectable	Cannot detect.	5

Risk Ranking

Based on the above, four risk categories are defined depending on the risk range of the particular hazard or hazardous event. Table 2 illustrates these categories.

Table 2 Risk Assessment Categories

Risk = Likelihood + Severity + Detectability	Risk Category
3 – 5	Low
6 – 8	Moderate
9 – 11	High
12 – 15	Very High

All risks with values of 9 and over (categories "High" and "Very High") were given the highest priority. The rationale for this cut-off value is that there are 19 different possible sums of the above criteria (likelihood, severity and detectability) that result in a risk score of 9. All these are due to a combination of a low value of one of the criteria and a high and/or moderate value for the remaining two criteria, or a moderate value of the three criteria. Any of these combinations is deemed critical and considered to require control in the form of preventive measures, monitoring and/or responses.

Critical Control Point Identification

As defined previously a Critical Control Point (CCP) is an essential step in the water system at which control can be applied to prevent or eliminate a drinking water health hazard or to reduce it to an acceptable level. For the Risk Assessment, a CCP is defined as a risk with an assessed value of 9 or over, and which is preventable.

Recommended minimum CCPs are defined (regardless of the risk value associated to them) as those control points required by regulation to meet minimum treatment requirements for primary disinfection and secondary disinfection as outlined in 0. *Reg. 170/03* and the *Procedure for Disinfection of Drinking Water in Ontario.* These CCPs are those points where control can be applied to ensure the minimum log removal, pathogen inactivation, or sufficient disinfectant residual in the distribution system.

Some hazardous events (e.g. terrorism/vandalism acts) will have a high risk even if very unlikely due to their potential severity and the fact that they are very hard to detect. For these cases, it would be very expensive to implement preventive or monitoring controls. Therefore, these events may be addressed by emergency response procedures.

Critical Control Limits

Critical Control Limits (CCLs) are values indicating maximum, minimum, or a range of levels for the parameters that best describe the presence of a hazard related to a CCP. CCLs are only assigned to CCPs. When a CCL is reached, a deviation procedure is implemented to correct the situation prior to reaching a level of regulatory non-compliance. Some hazards may be mitigated by monitoring/controlling several variables that may be used as surrogate parameters. For those cases, the corresponding CCLs are specified for each variable.

Critical Control Point Monitoring

Monitoring of CCPs includes any checks or systems available to detect hazards or the potential for hazards. This includes continuous monitoring, visual inspection, and periodic sampling. Monitoring can be complemented by control measures to ensure CCPs stay within the desired limits.

Procedures for Deviations from Critical Control Points

The DWQMS specifies that each CCP must have one or more documented response procedures to respond to cases when the CCLs are exceeded. These procedures ensure that adequate response or corrective measures are applied so that the hazard is eliminated, minimizing the risk of the production and/or distribution of unsafe water, and preventing a recurrence.

The procedure defines and describes:

- Who responds
- How the cause of the CCL deviation is investigated
- How the hazardous event and hazard are corrected or addressed
- To whom the hazard occurrence is reported to
- How it is reported
- How the whole event should be recorded

The documentation of procedures developed for each CCP is consistent with Section 5 of the Operational Plan, Document and Records Control.

Risk Assessment Review

As required by the DWQMS, this risk assessment includes documentation to guarantee that the risk assessment information undergoes regular review and validation. A review of the validity of the risk assessment (including hazards identified, control measures, monitoring procedures, and risk values) is to be conducted for Prescott's water system on an annual basis. If necessary, new hazards or hazardous events will be added to the original assessment. The calendar year review of the Risk Assessment will be performed according to the following procedure:

1. The Risk Assessment Table developed during the Risk Assessment process will be amended including any new information regarding equipment, process or regulatory changes, and any new mitigation methods or procedures.
2. A review of the system will include each step of the water distribution system. The review will be conducted by the risk assessment team.
3. For each hazardous event identified on the risk assessment tables, the values assigned for the three risk criteria: likelihood, severity, and detectability will be reviewed. Values for these criteria will be based on the ratings defined in Table 1 above. The risk score for each hazardous event is determined by adding the likelihood, severity, and detectability numbers.
4. For each hazardous event, confirm the fields corresponding to existing preventive measures, monitoring processes/procedures, and emergency response procedures.

5. Identify items marked as CCPs within the drinking water distribution system. Confirm the values of the CCLs specified for each CCP.
6. Confirm the monitoring and risk mitigating measures to control CCPs and ensure that their control parameters are within the CCLs listed on the spreadsheet.
7. For those risks for which new mitigating actions have been implemented, modify the risk values.

Risk Assessment Continuous Improvement

The risk assessment will be redone every 36 months in accordance with the procedure documented in this SLD. This re-assessment will include the effects of any new regulations that may affect the validity of the assessment, any changes/additions to water sources, any major modifications to the systems water treatment processes, and any other factors that may have arisen since the development of the current risk assessment.

Risk Assessment Outcomes

The risk assessment outcomes are documented in the risk assessment tables, which provide details of the following:

- Identified potential hazardous events and associated hazards
- Assessed risks associated with the occurrence of hazardous events
- Ranked hazardous events
- Identified control measures to address the potential hazards and hazardous events
- Identified CCPs and their respective CCLs
- Procedures and/or processes to monitor, respond to, report and record deviations in the CCLs

Associated Documents

Not Applicable

References

Operational Plan Section 7 - Risk Assessment

Operational Plan Section 8 - Risk Assessment Outcomes

Records

Risk Assessment / Critical Control Points Table

8. RISK ASSESSMENT OUTCOMES

8.1 OBJECTIVES AND SCOPE

This Section includes information to describe the approach taken by the Town of Prescott to document the outcomes of the risk assessment activities undertaken as part of the risk assessment procedures identified in Section 7.

8.2 ACTIVITY DESCRIPTION

The results of the risk assessments are documented on the *Risk Assessment Table* and the *Critical Control Points Table* and are maintained according to the guidelines identified in Section 5, Document and Records Control. The latest version of the *Risk Assessment Table* and the *Critical Control Points Table* is included in this Operational Plan binder following this section. The Risk Assessment Table includes all hazardous events, their assessed values, and existing control measures to mitigate them.

8.3 ASSOCIATED PROCEDURES AND DOCUMENTATION

SLD-07- Risk Assessment and Risk Assessment Outcomes

Risk Assessment / Critical Control Points Table

8.4 REFERENCES

Drinking Water Quality Management Standard — Element 8

Town of Prescott								Date: July/14/2023	Version: 2.0
Risk Assessment & Critical Control Point Table									Rev: 2
Hazardous Event	**Consequence**	**Control and Monitoring Measures**	**Likelihood**	**Severity**	**Detectability**	**Risk Score**	**CCP?**	**Response and Mitigating Procedures**	
Watermain break caused by third party construction (i.e. gas utility breaks watermain when working on the gas line)	Loss of supply. Potential contamination of water due to low / negative pressure in distribution lines.	Contractors required to call for locates.	1	3	1	5	No	Refer to the *Prescott Water Distribution System Contingency Plan*	
Major fire in distribution system area	Low pressure. Potential contamination of water due to low pressure in distribution lines. .	The fire department calls in the event of a fire. The low pressure is detected on SCADA at the water treatment plant and OCWA staff Town operators.	2	2	4	8	No	Refer to the *Maintenance and Operating Procedures Manual.*	
Fire department causing transients in system due to rapid closing of hydrant valves	Watermain Break **Iri** Distribution System	Officers are aware of proper hydrant operating procedure and potential hazards associated with water hammer	2	2	1	5	No	Refer to the *Prescott Water Distribution System Contingency Plan*	

Illegal connection to system through hydrants.	Potential introduction of contaminants.	Bylaw against illegal connections in place. Calls to Operations for permission requests.	3	1	4	8	No	Refer to the *Prescott Water Distribution System Contingency Plan*
Improper disinfection during commissioning of new water infrastructure	Potential for microbiological contamination.	Town personnel present to ensure proper disinfection during commissioning of new infrastructure.	1	3	1	5	No	Refer to Standard Operating Procedures
Risk of low chlorine residual in dead-ends.	Adverse water quality. High Turbidity.	A flushing program is in place.	2	1	1	4	Yes	Refer to the Prescott Water Distribution System Contingency Plan
Cross connection / backflow / back siphonage	Contamination of water supply.	Backflow prevention in place at high risk locations.	1	5	4	10	No	Refer to the *Prescott Water Distribution System Contingency Plan*
Valve Corrosion	Corrosion of valves will prevent valves from working when needed, also can create leaking and complete valve failure (bonnet displacement)	New Installs will have anodes installed. Existing infrastructure identified as high risk will receive priority over other infrastructure for replacement.	3	2	2	7	Yes	Follow "Procedure to Deal With Broken Watermain"
Long Term Impacts of Climate Change	Flooding & source water contamination due to excess run off.	Refer to "Spill Response" Contingency Plan (OCWA) And/or	1	3	3	7	No	Refer to "Spill Response" Contingency Plan (OCWA) And/or Refer to "Provision of an Alternate Water Source" (OCWA)

		Refer to "Provision of an Alternate Water Source" (OCWA)						
Source Water Supply Shortfall	Water shortage. Reduced fire protection.	Refer to "Provision of an Alternate Water Source" (OCWA)	1	3	4	8	No	Refer to "Provision of an Alternate Water Source" (OCWA)
Extreme Weather Events	Flooding & source water contamination due to excess run off.	Refer to "Loss of Service" Contingency Plan (OCWA)	1	3	3	7	No	Refer to "Loss of Service" Contingency Plan (OCWA)
Sustained Extreme Temperatures•	Low chlorine residuals & Frozen service lines	Control low chlorine with increased watermain flushing. Control frozen service lines with bleeder lines.	2	3	2	7	Yes	Issue watermain flushing work orders (extreme heat). Issue statement to residents to turn on bleeder lines and/or leave tap running during extreme cold.
Chemical Spill Impacting Source Water	Intake shut down at WTP.	Refer to "Spill Response" Contingency Plan (OCWA)	2	2	2	6	No	Refer to "Spill Response" Contingency Plan (OCWA)
Terrorist Threat	Potentially compromise potability of drinking/source water.	Refer to "Security Breach" Contingency Plan (OCWA)	1	3	3	7	No	Refer to "Security Breach" Contingency Plan (OCWA)
Vandalism	Potential destruction to distribution system components.	Refer to "Security Breach" Contingency Plan (OCWA)	2	2	2	6	No	Refer to "Security Breach" Contingency Plan (OCWA)

Cybersecurity	Data breach to hackers, along with loss of computer access (ransomware).	The Town has a security system in place, and the Town's computer system is monitored and maintained by a third party company that specializes in IT.	1	2	2	5	No	Contact third party IT company for guidance/assistance.

9. ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES

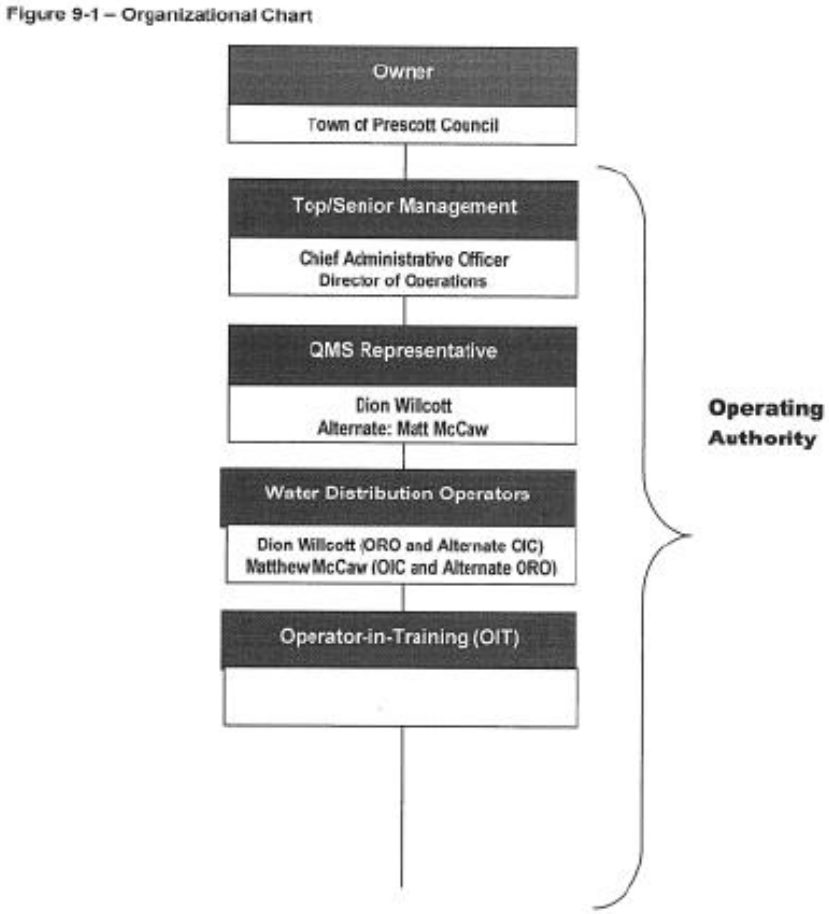
9.1 OBJECTIVES AND SCOPE

This section outlines the organizational structure of the Operating Authority, as well as the roles, responsibilities, and authorities that relate to the operation and performance of the Town's QMS. This Section and all associated procedures apply to all personnel involved in the provision of safe drinking water within the distribution system.

9.2 ACTIVITY DESCRIPTION

The reporting structure for the distribution system is outlined in the Organizational Chart in Figure 9-1 below.

Figure 9-1 — Organizational Chart



The responsibilities and authorities for all staff related to the operation of the QMS and the provision of safe drinking water within the distribution system are documented in Table 9-1.

Table 9-1 Responsibilities and Authorities

Position	Responsibilities and Authorities
Owner (Town Council)	**Responsibilities** • Ensures that the Operating Authority has sufficient resources to guarantee the provision of safe drinking water • Endorses Operational Plan and commits to it continuous improvement • Ensures that adequate financial resources are available for the operations, maintenance, renewal, and replacement of water distribution infrastructure **Authorities** • Approves major infrastructure projects which may impact drinking water quality • Approves and selects Operating Authority including Top Management
Top Management (Chief Administrative Officer)	**Responsibilities** • Reports to the Owner • Ensures that the broad mandate of administrative and operational requirements of the Town is carried out. • Oversees the administration (e.g. day to day activities) of the Public Works Department to implement the Town's policies and procedures as set by Council through by-law, resolution or as otherwise established. • Ensures that the QMS is in place and endorses the Operational Plan **Authorities** • Hires management staff • Oversees allocation of operations and maintenance budgets across all Town Departments
Top Management (Director of Operations)	**Responsibilities** • Ensures that the QMS is in place and endorses the Operational Plan • Communicates the QMS in accordance with the Communication Procedure • Participates in Management Review meetings • Assures and optimizes the quantity, roles and responsibilities of all positions identified and funded in the public works department • Assures that all public works assets (equipment, infrastructure and facilities), are managed with appropriate processes, including inventory, condition, maintenance, and planned replacement as required • Supports Council with the necessary policy advice to standardize service expectations in related areas of public works • Manages and leads implementation of business plans for each of the primary service areas to assure optimized value including alternative operating models (in house/ outsourced / inter-municipal co-operation etc), Optimized "user pay" revenue generation, operational efficiencies, and sustainability of infrastructure • Establishes annual funding to support planned activities of an operating and capital nature

- Monitors all department expenditures and revenues within approved budget frameworks and retains professional services and support agencies for assistance
- Directs, with the Treasurer, the appropriate and useful application of reserve funds for various significant needs
- Co-ordinates, with professional assistance where necessary, all contracts, particularly those which entail multi-year solutions, capital works or significant cost
- Monitors and is responsible for the contracts for water and wastewater treatment plants, waste management, engineering and any other department—related contracts and retains professional services and support agencies for assistance
- Participates in assuring general and specific technical servicing requirements for proposed and actual land developments and retains professional services and support agencies for assistance
- Establishes, reviews, and approves, subject to relevant legislation; design standards and specifications for all related public infrastructure and hard servicing standards for all related private development and retains professional services and support agencies for assistance
- Prepares and submits applications for external funding, and/or cost sharing, for projects of a related nature with assistance from external consultants

Authorities

- Hires management staff
- Allocates water distribution operations and maintenance budgets
- Hires operations and maintenance staff
- Manages and evaluates performance of staff

QMS Representative (Dion Willcott) & QMS Alternate (Matt McCaw)

Responsibilities

- Designated Overall Responsible Operator (ORO)
- Designated Alternate Operator-in-Charge (01C)
- Maintains the Quality Management System
- Reports on the performance of the QMS and continual improvement activities to Top Management
- Ensures current versions of documents related to the QMS are in use
- Promotes awareness of the QMS to all personnel involved in the water distribution system
- Responsible for internal auditing.
- Responsible for emergency management training
- Schedules and attends Management Review meetings
- Provides risk assessment review
- Performs other duties as assigned

Authorities

- Manages all processes and procedures associated with the operation and performance of the QMS
- Implements changes in QMS documentation and procedures

ORO/OIC /Water Distribution Operators	**Responsibilities** • Operational Plan Review • Internal Audit (conducting and/or scheduling outside) • Prepare and Communicate Management Review • Testing Emergency Management Procedures • Review competencies • Review and Update Training as Required • Review and Conduct Hazard Analysis (If Required) • Review Status Of Corrective Actions • QMS Training **Authorities** • Operations of the water distribution system under the direction of the Director of Operations
Operator-in-Training	• Participates in QMS Training **Authorities** • Operations of the water distribution system under the direction of ORO/OIC

Note: The responsibilities and authorities are not limited to those listed in Table 9-1, and include those listed in the *Job Descriptions.*

9.3 ASSOCIATED PROCEDURES AND DOCUMENTATION

Job Descriptions

9.4 REFERENCES

Drinking Water Quality Management Standard — Element 9

10. COMPETENCIES

10.1 OBJECTIVES AND SCOPE

This Section and associated documentation identify how the Town of Prescott ensures that staff involved in the water distribution system have the competencies to perform their functions adequately. This Section applies to all Town of Prescott personnel involved in the water distribution system whose roles and responsibilities affect the provision of safe drinking water.

10.2 ACTIVITY DESCRIPTION

In order to help ensure the use of competent individuals to operate and maintain the drinking water distribution system, a Competency Table, shown as Table 10-1, has been developed to identify and manage the knowledge, skills, and abilities of personnel.

Table 10-1 Competency Table

Position	Required Competency
Top Management	• Training in Emergency Management • DWQMS Awareness
QMS Representative & QMS Alternate	• Distribution certificates, pursuant to the Safe Drinking Water Act • Minimum of three years of experience in the water field • Minimum of three years experience in a municipal setting or municipal-related agency • DWQMS related experience and training • Class G Drivers license • Demonstrated competency and skills in o Regulations affecting provision of municipal services o Regulations affecting workplace health and safety o Employee relations in a union environment o Communications, including speaking, listening, report writing o Computer applications such as Microsoft Excel, Word, Explorer, and Outlook o Planning and Organizing o Public works operations

ORO/OIC / Water Distribution Operator /	• Minimum of grade 12 high school diploma or equivalent • Minimum of three years experience in the municipal water distribution sector • Knowledge of relevant legislation such as W.S.I.B., Health and Safety and MOE regulations concerning water distribution systems would be an asset • Minimum of an MOE Class 1 License for Water Distribution systems or be able to achieve this license within one year • Knowledge of water system construction techniques

Table 10-1 Competency Table

Position	Required Competency
	• Valid Class DZ drivers' license • DWQMS Training
Operator In Training	• Valid MOE OIT Drinking Water Operator Certificate

All training needs including hours of training required, certificate expiry dates, etc. shall be identified on the *Training Matrix.* A sample / template of the *Training Matrix* is located in this Operational Plan binder following this section. The location of the updated *Training Matrix* is identified in *SLD-058- Control of Records.*

10.3 ASSOCIATED PROCEDURES AND DOCUMENTATION

Training Matrix

SLD-05B- Control of Records

10.4 REFERENCES

Drinking Water Quality Management Standard — Element 10

Training Matrix

Employee	Role	Certificate Level	Hours of Training Required	Distribution System Certificate Expiry Date	Training Cycle	Hours of Training Completed in Current Cycle	CEU Courses Completed
Dion Willcott	Water Operator	Water Distribution 2	36 CEU hours 69 OJT hours 105 Total	Refer to certificate posted in water office.	For Further Detail Reference Training Records Dion (Binder on shelf in water office)		
Matthew McCaw	Water Operator	Water Distribution 2	36 CEU hours 69 OJT hours 105 Total	Refer to certificate posted in water office.	For Further Detail Reference Training Records Matt (Binder on shelf in water office)		
Ben Bowden	Water Operator	Water Distribution 1	21 CEU hours 69 OJT hours 90 Total	Refer to certificate posted in water office.			

11. PERSONNEL COVERAGE

11.1 OBJECTIVES AND SCOPE

This Section relates to procedures followed to ensure that competent individuals are available to fulfill the responsibilities needed for the ongoing operation of the drinking-water distribution system, and the maintenance of the Town's QMS. This Section applies to all Town of Prescott personnel involved in the distribution system.

11.2 ACTIVITY DESCRIPTION

The Town of Prescott shall ensure that competent personnel are available at all times to fulfill duties required to ensure the quality/quantity of safe drinking water within the distribution system in the Town. This includes ensuring that positions requiring back-up personnel have an appropriate number of qualified and competent replacements, and ensuring employees have access to all tools and resources needed to perform their roles.

The water distribution system is staffed from Monday to Friday from 7:00 am to 3:30 pm. Dion Willcott is the primary Overall Responsible Operator (ORO) Along with Matt McCaw as alternate ORO. The ORO is appointed by the Town Council. The ORO and Alternate ORO are identified in the Prescott Water Distribution System Contingency Plan. The OIC, Alternate OIC, and ORO are also identified in the Prescott Water Distribution System Contingency Plan. The OIC is the operator who runs the system and responds to operational inquiries and makes decisions in the absence of the ORO.

There is an assigned on-call operator during weekends and after-hours. The on-call schedule is set by the ORO/01C. The on-call program is cycled through out the Water Works Department. The on-call schedule is located in the Water Office.

In the event the of a major emergency where the Water Department is considered to be understaffed and/or require additional personnel/assistance, the Town of Prescott will seek assistance from surrounding municipalities via the ONWARN resource system.

The water treatment plant staff are responsible for the elevated storage tank, as it is also tied to the SCADA system.

11.3 ASSOCIATED PROCEDURES AND DOCUMENTATION Not

Applicable

11.4 REFERENCES

Drinking Water Quality Management Standard — Element 11

Ontario Water / Wastewater Agency Res once Network

Membership Certificate

This is to certify that

The Town of Prescott

is a member of the Ontario Water / Wastewater Agency Response Network (OnWARN)
and has made a commitment to support and promote province-wide emergency preparedness and response
by signing OnWARN's Mutual Aid & Assistance Agreement on January 19, 2018.

OnWARN

Chair,
Ontario Water / Wastewater Agency Response Network

12. COMMUNICATIONS

12.1 OBJECTIVES AND SCOPE

This Section identifies the process to communicate information related to the Town's QMS to appropriate internal and external parties. This Section applies to all internal and external communication related to the Town of Prescott's drinking water QMS within the distribution system.

12.2 ACTIVITY DESCRIPTION

12.2.1 Internal Communication

The Operational Plan shall be made available to all Town of Prescott personnel involved in the provision of safe drinking water within the distribution system including new, part-time, temporary, and student employees.

Communication between Top Management and the Owner shall occur as part of regular Council Meetings. Information documented as a result of Management Review Meetings (refer to Section 20, Management Review) shall be forwarded to the Owner in the form of a formal report that includes details such as updates on progress and actions taken.

12.2.2 External Communication

Quality requirements and standards for essential supplies and services shall be communicated to all suppliers and service providers during tender processes. DWQMS information shall also be made available to the public via the Town of Prescott's website, or by other means upon request.

Communication with OCWA is in accordance with the Town's contract with OCWA and any other OCWA notifications.
Additional special communication procedures are detailed in other Operational Plan Sections if applicable.

ASSOCIATED PROCEDURES AND DOCUMENTATION

- QMS Policy
- Town of Prescott Letter of Commitment
- Contract with OCWA
- OCWA Notifications

12.3 REFERENCES

Drinking Water Quality Management Standard — Element 12

13. ESSENTIAL SUPPLIES AND SERVICES

13.1 OBJECTIVES AND SCOPE

This Section describes the processes by which the Town of Prescott ensures that supplies and services deemed essential to the safety and high quality of drinking water within the distribution system are procured, obtained, and verified. This Section and associated procedures apply to all supplies and services considered essential to the supply of safe drinking water for the Town of Prescott within the distribution system.

13.2 ACTIVITY DESCRIPTION

The Operating Authority maintains a *List of Essential Supplies and Services,* which is included in this Operational Plan binder following this section. It describes and/or references methods for:

- Procuring essential supplies and services
- Establishing and communicating quality expectations
- Ensuring quality expectations are met accordingly

For all supplies and services listed, Town staff attempt, where possible, to multi-source and have an established, pre-approved supplier on call in cases of emergency.

13.3 ASSOCIATED PROCEDURES AND DOCUMENTATION

List of Essential Supplies and Services

13.4 REFERENCES

Drinking Water Quality Management Standard — Element 13

LIST OF ESSENTIAL SUPPLIES AND SERVICES

Supplier	Contact Information	Essential Supply or Service	Quality Requirements
Beck's Construction	Tel: 613-925-4764	Spill Equipment Excavation Contractors Vacuum Trucks Inventory Parts	Readily Available Supplier Specifications
Rideau St. Lawrence Utilities	Tel: 613-925-3851	Hydro	Readily Available Supplier
Elmer's Construction	Tel: 613-926-2541	Excavation Contractors Vacuum Trucks	Readily Available Supplier Specifications
1000 Islands Rentals & Sales	Tel: 613-345-2753	Equipment Rental	Readily Available Supplier Specifications
OnServe IT Services	Tel: 613-634-8125	IT Services	Readily Available Supplier Specifications Readily Available Supplier Specifications
CWW	Tel: 1-613-569-7777	Vacuum Trucks	Readily Available Supplier
Ontario One Call	Tel: 1-800-400-2255 Prescott ID #: 01523 Prescott Station Code: XCOP21	Utility Locates	Readily Available Supplier
EVB	Tel: 613-935-3775	Engineering Consultants	Professional with greater than 5 years' experience
OCWA	Tel: 613-448-3098	Water Treatment Plant Operating Authority	Professional with greater than 5 years' experience
Iconix	Tel: 613-858-6074	Inventory Supplier	Readily Available Supplier
Ken Miller Excavating	Tel: 613-802-0979	Excavation Contractor	Readily Available Supplier

14. REVIEW AND PROVISION OF INFRASTRUCTURE

14.1 OBJECTIVES AND SCOPE

This Section relates to the processes to review the adequacy of the existing and planned infrastructure needed to ensure the ongoing supply of safe drinking water. This Section applies to all Town of Prescott personnel responsible for ensuring the adequacy of the Town's water distribution system infrastructure.

14.2 ACTIVITY DESCRIPTION

The review of the adequacy of existing infrastructure to supply safe drinking water for the Town of Prescott's drinking water distribution system is conducted following the procedures outlined in *SLD-14- Review, Rehabilitation, and Renewal of Infrastructure.*

Any major risks identified during the risk assessment will be considered and communicated annually during the Management Review process.

The results and corresponding recommendations of this review are also communicated to Top Management and the Owner through the Management Review process (See Section 20, Management Review).

14.3 ASSOCIATED PROCEDURES AND DOCUMENTATION SLD-

14- Review, Rehabilitation, and Renewal of Infrastructure

14.4 REFERENCES

Drinking Water Quality Management Standard — Element 14

SLD-14 - REVIEW, REHABILITATION, AND RENEWAL OF INFRASTRUCTURE

Purpose

This SLD describes the means by which the adequacy of infrastructure necessary to operate and maintain the drinking water distribution system is reviewed. This procedure details how maintenance, rehabilitation, and renewal projects related to the drinking water distribution system infrastructure are initiated, approved, funded, and communicated to the Owner.

Scope

This policy applies to all Town of Prescott personnel responsible for ensuring the adequacy of the Town's water distribution system infrastructure.

Definitions

Infrastructure is the set of interconnected structural elements that provide the framework for supporting the operation of the drinking water distribution system.

Rehabilitation is the process of repairing or refurbishing an infrastructure

element. **Renewal** is the process of replacing the infrastructure element

with new elements.

Procedure

Infrastructure Review

On going review conducted through daily water distribution tasks and duties. Issues associated with the infrastructure are communicated to Senior Management via e-mail.

Outcomes

Senior Management prepares plan to resolve issues when necessary.

Initiation of Infrastructure Provision, Renewal, or Rehabilitation

The following are examples of how the provision, renewal or rehabilitation of infrastructure could be initiated:

- A project is recommended during one of the aforementioned meetings
- A project is recommended when results of the infrastructure review are discussed at the Management Review Meeting
- MOE inspections may call attention to infrastructure changes for areas of vulnerability as documented in inspection reports

- Any staff may suggest projects by bringing it to the attention of the ORO/OIC, following which the suggestion will be discussed during one of the aforementioned meetings
- Public Complaints

Capital Works Review

- The Director of Public Works will schedule meetings for the review of the proposed capital works projects.
- The infrastructure projects are assessed and prioritized based on sustainability, growth, risks assessed (through risk assessment), compliance, overall priorities, time required, and capital budget allocations.
- The results of the review of capital works will be documented as the draft capital budget.
- A final draft capital budget will be prepared by the Director of Public

Works. **Council Approval**

The Director of Public Works will submit the final draft capital budget to Council for approval. Timing of approval is subject to corporate budget timetables.

Preventive Maintenance:

Facility Equipment Maintenance is scheduled by the ORO/01C.

The ORO/OIC assigns maintenance tasks to designated water distribution personnel. When the assigned work is completed, the ORO/OIC confirms completion of work, noting any relevant work details. A description of the work completed by Water Distribution Operators is also recorded.

Preventive Maintenance Programs:

The Town of Prescott Public Works department oversees the following preventive maintenance programs:

- Hydrant inspection
- Watermain flushing

Preventive Maintenance Programs are described in the *Maintenance and Operating Procedures Manual.*

Emergency Maintenance:

Emergency maintenance tasks result from equipment malfunction, breakage or third party damage occurring in the distribution system. Emergency maintenance is authorized by the ORO/OIC, depending on the severity of event. During off-hours, the on-call Operator responds to emergency maintenance, and notifies the Public Works Supervisor if necessary. Emergency maintenance activities are described in the *Town of Prescott Water Distribution System Contingency Plan.*

Monitoring and Communication of the Maintenance Program

Town of Prescott Water Staff are responsible for monitoring the effectiveness of the maintenance program by evaluating the key maintenance indicators which include:

- Percent of unaccounted water
- Number of leaks
- Number of watermain breaks

The number of leaks and watermain breaks are recorded in the year end report. Maintenance issues are discussed during the preparation process for the annual operating budget.

Associated Documents

Maintenance and Operating Procedures Manual

Town of Prescott Water Distribution System Contingency Plan

References

Operational Plan Section 14 - Review and Provision of Infrastructure

Operational Plan Section 15 - Infrastructure Maintenance, Rehabilitation and Renewal

Records

Maintenance Records

Capital Budget

15. INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL

15.1 OBJECTIVES AND SCOPE

This Section identifies the maintenance, rehabilitation, and renewal programs that the Town of Prescott has in place for its drinking water distribution system infrastructure. This Section applies to all Town of Prescott personnel responsible for ensuring the maintenance, rehabilitation, and renewal of the Town's water distribution system infrastructure.

15.2 ACTIVITY DESCRIPTION

The Town of Prescott's infrastructure management program outlines activities that ensure the maintenance of all essential water system infrastructure. *SLD-14-Review, Rehabilitation, and Renewal of Infrastructure* details the processes and activities conducted to ensure the adequacy of the infrastructure, including all maintenance, rehabilitation, and renewal/replacement programs in place.

Maintenance — Planned

The ORO/OIC is responsible for scheduling all planned maintenance. The scheduling of all maintenance is based on a variety of criteria including: inspections, infrastructure and MOECP requirements and in-field experiences. Planned maintenance is recorded within our maintenance & field logs.

Maintenance — Unplanned

Unplanned maintenance is a result of a malfunction within the distribution system. Unplanned maintenance is generally performed by scheduled water staff during regular hours, and on-call water staff after hours. All work performed is also recorded within our maintenance & field logs, along with emergency repair forms for watermain and water service breaks.

Rehabilitation and Renewal

In combination, the ORO/OIC and Director of Operations discuss any major needs for infrastructure rehabilitation and renewal within the annual Management Review. These needs are then communicated to council for consideration/approval.

Activities used to maintain, rehabilitate and renew the Town of Prescott's infrastructure:

- Hydrant Inspections
- Valve Inspections
- Watermain Inspection/Repair
- Water Loss Monitoring
- Flushing Program

15.3 ASSOCIATED PROCEDURES AND DOCUMENTATION

SLD-14- Review, Rehabilitation, and Renewal of Infrastructure

15.4 REFERENCES

Drinking Water Quality Management Standard — Element 15

16. SAMPLING, TESTING, AND MONITORING

16.1 OBJECTIVES AND SCOPE

This Section refers to the sampling, testing, and monitoring program for drinking water quality that is currently in place for the Town of Prescott. This Section and associated procedures apply to all sampling and testing, conducted either internally or by a third-party agent.

16.2 ACTIVITY DESCRIPTION

The Town of Prescott is responsible as Owner and Operating Authority for establishing and maintaining a regular sampling, testing, and monitoring program that, at a minimum, meets regulatory requirements. The results are recorded in the dead end log book and hydrant flushing records, located in water office.

Chlorine residuals are sampled at dead-end locations. The rest of the sampling activities for the drinking water system are conducted by OCWA.

The sampling, testing, and monitoring results are recorded in the appropriate log books, which are maintained by the distribution operators.

The sampling, testing, and monitoring results, including abnormal results, are communicated to the Owner through the Management Review process (See Section 20, Management Review).

The QMS Representative shall be responsible for ensuring that changes in the sampling, testing, and monitoring procedures are promptly updated in the QMS documentation.

16.3 ASSOCIATED PROCEDURES AND DOCUMENTATION

Dead End Log Book

Hydrant Flushing Records

16.4 REFERENCES

Drinking Water Quality Management Standard — Element 16

Dead End Sampling Points within Distribution System

Sample Point	Frequency
Edward Street (east of overpass)	Every 30 days (minimum)
Florence Street	Every 30 days (minimum)
George Street	Every 30 days (minimum)
Victor Road	Every 30 days (minimum)
Kingston Crescent	Every 30 days (minimum)
Industrial Road	Every 30 days (minimum)
Fort Town Drive	Every 30 days (minimum)
Churchill Road East	Every 30 days (minimum)
Fischl Drive	Every 30 days (minimum)
Prescott Centre Drive	Every 30 days (minimum)

17. CALIBRATION OF SAMPLING, TESTING AND MONITORING EQUIPMENT

17.1 OBJECTIVES AND SCOPE

This section describes the calibration program for all water sampling, monitoring and/or testing equipment and devices. These procedures apply to all devices, tools or equipment used within the Town of Prescott's Water Distribution Department used to take water quality samples and conduct water quality testing.

17.2 ACTIVITY DESCRIPTION

The Town of Prescott uses equipment such as chlorine test kits. The recording equipment calibration and maintenance activities shall be performed by appropriately trained and qualified personnel or by a third-party calibration service provider.

Water Distribution Staff, shall coordinate the calibration and maintenance with input from Operators, as appropriate.

The QMS Representative shall be responsible for ensuring that changes in the procedures are promptly updated in the QMS documentation.

17.2.1 Calibration and Maintenance Procedures

The calibration and maintenance procedures are performed in accordance to manufacturer's recommendations.

17.2.2 Equipment Maintained Externally

For external services such as laboratory services, leak detection services, the service provider shall be responsible for maintenance and calibration of the required test equipment.

17.2.3 Records

All calibration records shall be maintained per *SOP-05B Control of Records.*

17.3 ASSOCIATED PROCEDURES AND DOCUMENTATION SLD-

05B Control of Records

17.4 REFERENCES

Drinking Water Quality Management Standard — Element 17

18. EMERGENCY PREPAREDNESS AND RESPONSE

18.1 OBJECTIVES AND SCOPE

This Section refers to the procedure used by the Town of Prescott Drinking Water Distribution System to identify emergency situations and prepare response plans to deal with these situations. This procedure applies to the operations personnel of the Town of Prescott Public Works Department.

18.2 ACTIVITY DESCRIPTION

An outcome of the risk assessment process (see Sections 7 and 8) is the identification of potential emergencies that could impact the Town's supply of safe drinking water. *SLD 18 — Emergency Preparedness* includes the appropriate procedures for preparedness, response, and recovery in case of emergency.

Employee training on emergency response is conducted on an annual basis to ensure that established emergency procedures are well-understood by those responsible for carrying out response activities. Through this training, the Town of Prescott shall ensure that all personnel working within the drinking-water distribution system are aware of:

- Individual roles and responsibilities
- All relevant procedures
- Existing threats and hazards, and associated protective actions
- Details and location of any emergency equipment required

Training can be in the form of desktop exercises, and where possible, mock emergency situation exercises. In the event of an actual emergency, the results of the response shall be reviewed through the Management Review process (see Section 20).

An Emergency Contact List has been developed and included in the *Prescott Water Distribution System Contingency Plan* to ensure that the appropriate individuals shall be contacted in the event of an emergency and that the necessary actions are taken to respond to the situation. This list is reviewed on an annual basis during the QMS annual review.

18.3 ASSOCIATED PROCEDURES AND DOCUMENTATION

SLD 18 — Emergency Preparedness

Prescott Water Distribution System Contingency Plan

18.4 REFERENCES

Drinking Water Quality Management Standard — Element 18

SLD — 18— EMERGENCY PREPAREDNESS

Purpose

This document describes the procedure for maintaining a state of emergency preparedness to ensure the provision of safe drinking water within the Town of Prescott water distribution system.

Scope

This procedure applies to the operations personnel involved in the provision of safe drinking water within the distribution system.

Definitions

An **Emergency Response** refers to the effort to mitigate the impact of an emergency on water users.

Emergency Preparedness means identifying events in the water distribution system that could lead to emergencies, and having procedures and processes in place to respond to those emergencies.

Procedure

Definition of Emergency and Identification of Emergency Situations

An emergency is defined as a situation or service interruption that may result in the loss of the ability to maintain the supply of safe drinking water to water users. An emergency situation may arise very quickly and with little warning and it may affect either the entire system or only isolated sections, hence all types of emergencies need to be considered.

The Town of Prescott recognizes the need for emergency preparedness and awareness. The Town uses the risk assessment process, referenced in Sections 7 and 8 of the Operational Plan, to identify any potential situations or service interruptions that could result in loss of the ability to maintain the supply of safe drinking water.

As a result of the risk assessment, the Town of Prescott has identified potential situations that are considered emergencies. These situations are listed below in Element 8 "Town of Prescott Risk Assessment/Critical Control Points Table"

Emergency Response and Incident Levels

To ensure that all personnel are prepared for any unforeseen emergency situation, the Town of Prescott has developed a Communication Protocol. The Communication Protocol specifies the response to any incident involving the drinking water distribution system based on its severity, complexity, and resources required. For this purpose, three incident/emergency levels have been identified:

Level 1 is an event that can be handled entirely by the Operator on Call. It is however, in the discretion of the Operator on Call to escalate notification to the Public Works Water Foreman

(ORO/OIC). These events would normally have minimal impact on customers, community, and the environment. An Example of such incidents includes a small watermain break.

Level 2 is an event that requires immediate notification to the Public Works Water Foreman (ORO/OIC). These incidents affect the public but pose no immediate health concern or damage to property. These incidents have a more serious impact on customers, community, and the environment. The Public Works Water Foreman (ORO/OIC) will decide if wider communication is required.

An incident is considered a Level 2 emergency if:

- Critical customers such as a hospital, retirement home, industrial, commercial, and institutional customers are affected
- There is a large watermain failure
- It causes major traffic disruptions
- It results in an unplanned water service interruption

Level 3 is a situation that poses imminent/immediate threat to property and public health. It will likely require significant additional resources from normal operations and/or can threaten continued operations. These events have significant impact on customers, community, and the environment. The corrective actions to resolve this emergency may require extensive involvement of others Town emergency departments.

Examples of emergencies include:

- Sustained adverse water quality incidents
- Contamination of water supply
- Pandemic
- Critical shortage of staff

A Level 3 emergency requires the notification of the emergency to the Public Works Water Foreman (ORO/OIC) and Director of Public Works. Notification may escalate to the Chief Administrative Officer or Mayor, if necessary. It is possible for an event to initially be responded as a Level 1 or 2, but continuing circumstances could elevate it to a Level 3. The Public Works Water Foreman (OR0/01C) is responsible for deciding if an emergency is a Level 2 or Level 3 and notifying appropriate agencies.

Communication Protocol and Emergency Contact List

The DWQMS requires that an emergency communication protocol and an up-to date list of emergency contacts be maintained. The Town of Prescott has developed a Communication Protocol that contains instructions on how to make contact, when to contact key parties, and who has the authority or responsibility for making decisions. The Communication Protocol identifies the general steps that have to be followed by staff and the chain of command decisions depending on the incident / emergency level.

An Emergency Contacts List is included in the *Town of Prescott Water Distribution System Contingency Plan.*

Emergency Response Procedures

Emergency response procedures have been developed for specific emergency situations. The procedures are included in the *Town of Prescott Water Distribution System Contingency Plan.*

Emergency Response Training and Testing Requirements

To ensure that emergency response procedures are effectively executed, personnel involved in the provision of safe drinking water within the distribution system will be trained in the execution of the procedures. An annual training program will be developed by the ORO/OIC. Operations and maintenance staff will meet annually to discuss their responsibilities as stated in the procedures and the Communication Protocol. The QMS representative will ensure that documentation of this exercise is completed and maintained accordingly.

Maintenance and Updates

Maintenance and updates include the following:

- The emergency contact information is expected to change regularly as people move to other areas of work and phone numbers change; hence the Emergency Contact List is updated when necessary and checked, at minimum, annually.
- Regulatory changes are reflected in the specific procedures as they take effect, and also as legislative and regulatory requirements change.
- An annual review and updating of the procedures will be undertaken to ensure the latest information is used.

References to Municipal Emergency Planning Measures

The emergency management plan described in this QMS Procedure provides an overall approach to emergencies specific to the water distribution system. In case of a Town-wide emergency, this framework will work in conjunction with the Town's overall emergency plan.

Associated Documents

Town of Prescott Water Distribution System

Contingency Plan Communication Protocol

Records

Not Applicable

References

Operational Plan Section 18, Emergency Preparedness and Response

19. INTERNAL AUDITS

19.1 OBJECTIVES AND SCOPE

This Section outlines the approach for conducting internal audits of the Town of Prescott's QMS to ensure proper implementation and continual conformance to the requirements of the DWQMS. The entire QMS is subject to the auditing procedures described herein.

19.2 ACTIVITY DESCRIPTION

At a minimum, the entire QMS shall be audited at least once every calendar year. The procedure followed by the Town to conduct an Internal Audit is explained in *SLD-19-Internal Auditing.*

19.3 ASSOCIATED PROCEDURES AND DOCUMENTATION SLD-

19— Internal Auditing

19.4 REFERENCES

Drinking Water Quality Management Standard — Element 19

SLD — 19 — INTERNAL AUDITING PROCEDURE

Purpose

This procedure describes the process for managing the Internal Audit program of the QMS. It describes the procedure for conducting internal audits to ensure that the QMS meets all of the requirements of the DWQMS. This procedure also describes the process for correcting any non-conformities found during the audit process.

Scope

The entire QMS is subject to the auditing procedures described herein.

Definitions

QMS is the Quality Management System.

DWQMS is the Drinking Water Quality Management Standard.

Internal Audit is an internal verification process that involves a systematic and objective review of all documents, procedures and practices pertaining the drinking water QMS. The objective of an internal audit is to ensure the QMS conforms to the requirements of the DWQMS.

System Non-Conformance is any practice or procedure that does not meet the requirements of the DWQMS.

Opportunity for Improvement is a procedure or practice that can be improved upon, but does not represent a true system non-conformance.

Corrective Action is an action taken to fix the identified problem.

Preventive Action is an action taken to prevent the identified problem from recurring.

Procedure

The QMS Representative is responsible for ensuring that these procedures are followed specifically:

- Ensuring that all persons conducting internal audits are competent and readily available to conduct audits
- Developing a QMS Schedule
- Ensuring an annual Internal Audit is included in the QMS Schedule
- Ensuring that system non-conformances are addressed in a timely manner
- Ensuring that the Top Management is informed if additional internal auditing resources are required

SLD - 19 - INTERNAL AUDITING PROCEDURE

The Town of Prescott will conduct internal audits of its QMS on a regular basis to ensure that it continues to perform according to established policies and objectives. The audits will evaluate the performance of the QMS against the specific requirements of the DWQMS.

An audit schedule will be defined in the QMS schedule by the QMS Representative to ensure that the entire QMS is audited at least once every calendar year. The development of a schedule should consider results of previous audits, and may be amended based on these results.

Internal Auditors will be appointed by the QMS Representative. Auditors may be employees of the Town of Prescott or other competent people.

Conducting the Audit

The QMS Representative will strive to ensure that auditors are scheduled to conduct audits in areas outside of their day-to-day responsibilities. If necessary, external resources can be used to perform the audit.

The auditors will gather all required documents (procedures, work instructions, DWQMS, etc.) and background information on the element being audited to become familiar with the requirements. The Auditors will observe activities, review records, review previous internal and external audit results, and interview personnel as necessary to ensure that the status of the audited element of the QMS has been effectively covered.

The QMS Representative is responsible for coordinating and scheduling personnel interviews. During interviews, internal auditors will collect information and any data serving as objective evidence that a requirement has been met.

Audit Results

Audit results will be determined by comparing audit findings against the audit criteria defined within the DWQMS. This will be achieved by filling out the Internal Audit Checklist. When a systematic problem, gap or discrepancy is identified through the internal audit process, the auditor will include a System Non-Conformance in the Audit Report, describing the problem. Where the auditor finds a problem with the QMS, but the issue does not represent a true system interruption, the auditor will refer to it as an Opportunity for Improvement.

Members of the audit team will compile the results of the audit and submit a completed Audit Report to the QMS Representative as soon as possible. The Audit Report will summarize System Non-Conformances, Opportunities for Improvement and other notations. A description of the physical locations, organizational units, activities and processes audited, as well as the time period covered will be documented for every internal audit performed.

Upon receipt of the final Audit Report, the QMS Representative will review the results and identified non-conformances.

Corrective Action

When a system Non-Conformance is identified though the internal audit process, corrective action will be taken by the QMS representative, or designate, in a timely manner. The QMS representative will determine the actions required to rectify the issue, the personnel responsible for addressing the issue and a resolution date.

All System Non-Conformances will be subject to corrective action and preventive action (where applicable). The designated persons will ensure that the non-conformance has been resolved. The QMS Representative will ensure that any necessary revisions to the QMS procedures and policies are completed and communicated to relevant personnel.

Opportunities for Improvement will be reviewed by the QMS Representative and discussed at the next Management Review Meeting.

Communication

The QMS Representative (with the internal auditor, where required) will communicate the results of the audit to the appropriate personnel of the audited area(s) as applicable.

The results of the audit will be provided to Top Management and are included as input to the Management Review Process.

The QMS Representative will ensure that copies of the Audit Report are stored appropriately according to *SLD-05A-Control of Documents* and *SLD-05B-Control of Records.*

All relevant personnel will be made aware of the internal auditing procedure requirements through internal training sessions (see Section 12, Communications).

Associated Documents

SLD-05B-Control of Records

References

Operational Plan Section 19 - Internal Audits

Internal Audit Checklist

Records

Internal Audit Report and Checklist

INTERNAL AUDIT REPORT

DATE OF INTERNAL AUDIT:

AUDITOR NAMES:

AREAS VISITED:

INTERVIEWED:

DOCUMENTS VIEWED:

INTERNAL AUDIT CHECKLIST

DWQMS Requirement Notes	Notes	Method in Place?	Documented?	Gap?
1. Quality Management System				
PLAN — The Operational Plan shall document a Quality Management System that meets the requirements of this Standard.				
DO — The Operating Authority shall establish and maintain the Quality Management System in accordance with the requirements of this Standard and the policies and procedures documented in the Operational Plan.				
2. Quality Management System Policy				
PLAN — The Operational Plan shall document a Quality Management System Policy that provides the foundation for the Quality Management System, and:				
a) is appropriate for the size and type of the subject system,				
b) includes a commitment to the maintenance and continual improvement of the Quality Management System,				
c) includes a commitment to the consumer to provide safe drinking water,				
d) includes a commitment to comply with applicable legislation and regulations, and				
e) is in a form that provides for ready communication to all Operating Authority personnel, the Owner and the public.				
DO — The Operating Authority shall establish and maintain a Quality Management System that is consistent with the Policy.				
3. Commitment and Endorsement				
PLAN — The Operational Plan shall contain a written endorsement of its contents by Top Management and the Owner				

DO — Top Management shall provide evidence of its commitment to an effective Quality Management System by:				
a) ensuring that a Quality Management System is in place that meets the requirements of this Standard,				
b) ensuring that the Operating Authority is aware of all applicable legislative and regulatory requirements,				
c) communicating the Quality Management System according to the procedure for communications, and				
d) determining, obtaining or providing the resources needed to maintain and continually improve the Quality Management System.				
4. Quality Management System Representative				
PLAN — The Operational Plan shall identify a Quality Management System representative.				
DO — Top Management shall appoint, and authorize a Quality Management System representative who, irrespective of other responsibilities, shall:				
a) administer the Quality Management System by ensuring that processes and procedures needed for the Quality Management System are established and maintained,				
b) report to Top Management on the performance of the Quality Management System and any need for improvement,				
c) ensure that current versions of documents required by the Quality Management System are being used at all times,				
d) ensure that personnel are aware of all applicable legislative and regulatory requirements that pertain to their duties for the operation of the subject system, and				
e) promote awareness of the Quality Management System throughout the Operating Authority.				
5. Document and Records Control				
PLAN — The Operational Plan shall document a procedure for document and				

records control that describes how:				
a) documents required by the Quality Management System are:				
i. kept current, legible and readily identifiable				
. retrievable				
ii. stored, protected, retained and disposed of, and				
b) records required by the Quality Management System are:				
i. kept legible, and readily identifiable				
ii. retrievable				
iii. stored, protected, retained and disposed of.				
DO — The Operating Authority shall implement and conform to the procedure for document and records control and shall ensure that the Quality Management System documentation for the subject system includes:				
a) the Operational Plan and its associated policies and procedures,				
b) documents and records determined by the Operating Authority as being needed to ensure the effective planning, operation and control of its operations, and				
c) the results of internal and external audits and management reviews.				
6. Drinking-Water System				
PLAN — The Operational Plan shall document, as applicable:				
a) for the subject system:				
i. a description of the system including all treatment processes and distribution system components				
ii. the name of the Owner and Operating Authority				
iii. a process flow chart				
iv. a description of the water source, including:				
i. general characteristics of the raw water supply				

ii. common event-driven fluctuations and				
iii. any resulting operational challenges and threats				
v. a description of any critical upstream or downstream processes relied upon to ensure the provision of safe drinking water.				
b) if the subject system is an operational subsystem, a summary description of the municipal residential drinking water system it is a part of.				
c) if the subject system is connected to one or more other drinking-water systems owned by different owners, a summary description of those systems which:				
i. indicates whether the subject system obtains water from or supplies water to those systems, and				
ii. names the Owner and Operating Authority of those systems.				
DO — The Operating Authority shall ensure that the description of the drinking-water system is kept current.				
7. Risk Assessment				
PLAN — The Operational Plan shall document a risk assessment process that:				
a) identifies potential hazardous events and associated hazards,				
b) assesses the risks associated with the occurrence of hazardous events,				
c) ranks the hazardous events according to the associated risk,				
d) identifies control measures to address the potential hazards and hazardous events,				
e) identifies critical control points,				
f) identifies a method to verify at least once a year, the currency of the information and the validity of the assumptions used in the risk assessment,				
g) ensures that a risk assessment is				

conducted at least once every thirty-six months, and				
h) considers the reliability and redundancy of equipment.				
DO — The Operating Authority shall perform a risk assessment consistent with the documented process.				
8. Risk Assessment Outcomes				
PLAN — The Operational Plan shall document:				
a) the identified potential hazardous events and associated hazards,				
b) the assessed risks associated with the occurrence of hazardous events,				
c) the ranked hazardous events,				
d) the identified control measures to address the potential hazards and hazardous events,				
e) the identified critical control points and their respective critical control limits,				
f) procedures and/or processes to monitor the critical control limits,				
g) procedures to respond to deviations from the critical control limits, and				
h) procedures for reporting and recording deviations from the critical control limits.				
DO — The Operating Authority shall implement and conform to the procedures.				
9. Organizational Structure, Roles, Responsibilities and Authorities				
PLAN — The Operational Plan shall:				
a) describe the organizational structure of the Operating Authority including respective roles, responsibilities and authorities,				
b) delineate corporate oversight roles, responsibilities and authorities in the case where the Operating Authority operates multiple subject systems,				

c) identify the person, persons or group of people within the management structure of the organization responsible for undertaking the Management Review,				
d) identify the person, persons or group of people, having Top Management responsibilities required by this Standard, along with their responsibilities, and				
e) identify the Owner of the subject system.				
DO — The Operating Authority shall keep current the description of the organizational structure including respective roles, responsibilities and authorities, and shall communicate this information to Operating Authority personnel and the Owner.				
10. Competencies				
PLAN — The Operational Plan shall document:				
a) competencies required for personnel performing duties directly affecting drinking water quality,				
b) activities to develop and maintain competencies for personnel performing duties directly affecting drinking water quality, and				
c) activities to ensure that personnel are aware of the relevance of their duties and how they affect safe drinking water.				
DO — The Operating Authority shall undertake activities to:				
a) meet and maintain competencies for personnel directly affecting drinking water quality and shall maintain records of these activities, and				
b) ensure that personnel are aware of the relevance of their duties and how they affect safe drinking water, and shall maintain records of these activities.				
11. Personnel Coverage				
PLAN — The Operational Plan shall document a procedure to ensure that sufficient personnel meeting identified competencies are available for duties that directly affect drinking water quality.				

DO — The Operating Authority shall implement and conform to the procedure.				
12. Communications				
PLAN — The Operational Plan shall document a procedure for communications that describes how the relevant aspects of the Quality Management System are communicated between Top Management and:				
a) the Owner,				
b) Operating Authority personnel,				
c) Suppliers, and				
d) the public.				
DO — The Operating Authority shall implement and conform to the procedure.				
13. Essential Supplies and Services				
PLAN — The Operational Plan shall:				
a) identify all supplies and services essential for the delivery of safe drinking water and shall state, for each supply or service, the means to ensure its procurement, and				
b) include a procedure by which the Operating Authority ensures the quality of essential supplies and services, in as much as they may affect drinking water quality.				
DO — The Operating Authority shall implement the procedure.				
14. Review and Provision of Infrastructure				
PLAN — The Operational Plan shall document a procedure for the annual review of the adequacy of the infrastructure necessary to operate and maintain the subject system.				
DO — The Operating Authority shall implement and conform to the procedure and communicate the findings of the review to the Owner.				
15. Infrastructure Maintenance, Rehabilitation and Renewal				
PLAN — The Operational Plan shall document a summary of the Operating Authority's infrastructure maintenance, rehabilitation and renewal programs for the subject system.				

DO — The Operating Authority shall:				
a) keep the summary current,				
b) communicate the programs to the Owner, and				
c) monitor the effectiveness of the maintenance program.				
16. Sampling, Testing and Monitoring				
PLAN **—** The Operational Plan shall document:				
a) a sampling, testing and monitoring procedure for process control and finished drinking water quality including requirements for sampling, testing and monitoring at the conditions most challenging to the subject system,				
b) a description of any relevant sampling, testing or monitoring activities that take place upstream of the subject system, and				
c) a procedure that describes how sampling, testing and monitoring results are recorded and shared between the Operating Authority and the Owner, where applicable.				
DO — The Operating Authority shall implement and conform to the procedures.				
17. Measurement and Recording Equipment Calibration and Maintenance				
PLAN — The Operational Plan shall document a procedure for the calibration and maintenance of measurement and recording equipment.				
18. Emergency Management				
PLAN — The Operational Plan shall document a procedure to maintain a state of emergency preparedness that includes:				
a) a list of potential emergency situations or service interruptions,				
b) processes for emergency response and recovery,				
c) emergency response training and testing requirements,				

d) Owner and Operating Authority responsibilities during emergency situations,				
e) references to municipal emergency planning measures as appropriate, and				
f) an emergency communication protocol and an up-to-date list of emergency contacts.				
DO — The Operating Authority shall implement and conform to the procedure.				
19. Internal Audits				
PLAN — The Operational Plan shall document a procedure for internal audits that:				
a) evaluates conformity of the QMS with the requirements of this Standard,				
b) identifies internal audit criteria, frequency, scope, methodology and record-keeping requirements,				
c) considers previous internal and external audit results, and				
d) describes how Quality Management System corrective actions are identified and initiated.				
DO — The Operating Authority shall implement and conform to the procedure and shall ensure that internal audits are conducted at least once every twelve months.				
20. Management Review				
PLAN - The Operational Plan shall document a procedure for management review that evaluates the continuing suitability, adequacy and effectiveness of the Quality Management System and that includes consideration of:				
a) incidents of regulatory non-compliance,				
b) incidents of adverse drinking-water tests,				
c) deviations from critical control point limits and response actions,				
d) the efficacy of the risk assessment process,				
e) internal and third-party audit results,				
f) results of emergency response testing,				
g) operational performance,				

h) raw water supply and drinking water quality trends,				
i) follow-up on action items from previous management reviews,				
j) the status of management action items identified between reviews,				
k) changes that could affect the Quality Management System,				
I) consumer feedback,				
m) the resources needed to maintain the Quality Management System,				
n) the results of the infrastructure review,				
o) Operational Plan currency, content and updates, and				
p) staff suggestions.				
DO — Top Management shall implement and conform to the procedure and shall:				
a) ensure that a management review is conducted at least once every twelve months,				
b) consider the results of the management review and identify deficiencies and actions items to address the deficiencies,				
c) provide a record of any decisions 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) report the results of the management review, the identified deficiencies, decisions and action items to the Owner.				
21. Continual Improvement				
DO- The Operating Authority shall strive to continually improve the effectiveness of its Quality Management System through the use of corrective actions.				

20. MANAGEMENT REVIEW

20.1 OBJECTIVES AND SCOPE

This Section outlines the process by which the Town of Prescott periodically reviews the performance of its QMS. This Section and associated procedures apply to all Management Review meetings conducted by the Town of Prescott and any documentation associated with these meetings.

20.2 ACTIVITY DESCRIPTION

At a minimum, one Management Review Meeting shall be conducted once per calendar year to provide Top Management of the Town of Prescott with the information required for reviewing and evaluating the continued suitability, adequacy, and effectiveness of its QMS.

The QMS Representative is responsible for scheduling and coordinating the effort to bring the management team together for Management Review and ensure all the documentation and records required for this meeting are available.

The procedure followed to conduct the Management Review is detailed in *SLD-20--Management Review.*

All relevant personnel are made aware of the Management Review procedure requirements through internal training sessions (see Section 12).

20.3 ASSOCIATED PROCEDURES AND DOCUMENTATION SLD-

20— Management Review

20.4 REFERENCES

Drinking Water Quality Management Standard — Element 20

SLD — 20 — MANAGEMENT REVIEW

Purpose

This procedure identifies the process by which the Town of Prescott periodically reviews the performance of its Quality Management System (QMS). The purpose of the Management Review is to review and evaluate the continuing suitability, adequacy and effectiveness of the QMS.

Scope

This procedure applies to all procedures and practices related to the provision of safe drinking water within the distribution system.

Definitions

QMS is the Quality Management System.

DWQMS is the Drinking Water Quality Management Standard.

System Non-Conformance is any practice or procedure that does not meet the requirements of the DWQMS.

Opportunity for Improvement is a procedure or practice that can be improved upon, but does not represent a true system non-conformance.

Procedure

The QMS Representative is responsible for scheduling the Management Review Meeting. It is up to the discretion of the QMS Representative to schedule one or multiple meetings covering the minimum requirements.

At a minimum, the QMS Representative, and one member of upper Management will Attend the DWQMS Management Review.

At a minimum, one Management Review Meeting will be conducted once per calendar year. The review will cover, at a minimum, the agenda items listed below.

Agenda

It is the responsibility of the QMS Representative to ensure that at a minimum, each of the following agenda items is addressed.

Agenda Items:

1. Incidents of non-compliance with applicable regulations
2. Incidents of adverse drinking-water tests
3. Deviations from critical control point limits and corresponding actions taken
4. The effectiveness of the risk assessment process
5. Results of internal and external audits
6. Results of water system emergency response testing

7. Operational performance
8. Trends in the quality of raw water supply and drinking-water
9. Follow-up on action items from previous management review meetings
10. Updates on action items identified between management review meetings
11. Changes to services, activities, regulations, etc. that could impact the QMS
12. Consumer feedback
13. Resources needed for QMS maintenance
14. Results of the infrastructure review
15. The currency and content of the Operational Plan
16. Comments and suggestions made by personnel

Review Process

The participants of the Management Review Meeting will review all data presented for each agenda item in order to identify where improvements to the QMS and its procedures are required. The participants will make recommendations and/or initiate action plans to address identified deficiencies as appropriate. The QMS Representative will make note of any changes or action items required during the course of the review.

Minutes of the Management Review Meeting will be documented by the QMS Representative (or designate) and at a minimum, will include:

- The date and time of the Management Review Meeting(s)
- A list of attendees
- A summary of issues discussed and decisions made
- A list of identified system non-conformances and opportunities for improvement, as well as the recommended actions to correct the identified deficiencies
- Any recommendations for additional resources needed for maintenance or improvement of the QMS

Corrective Action

The QMS Representative will compile a record of new and outstanding action items including all System Non-Conformances and Opportunities for Improvement.

For all System Non-Conformances, once made aware, a QMS Representative will engage in corrective action in a timely manner and will notify the appropriate personnel

responsible for addressing the issue. The designated persons will ensure that the non-conformance has been resolved, and will notify QMS Representative upon completion.

For all Opportunities for Improvement, if directed by the Management Team, the QMS Representative will notify the personnel responsible for addressing the potential issue and propose a timeline. The designated persons will ensure that the action items have been completed in a timely manner, and will notify the QMS Representative upon completion.

The QMS Representative will maintain a record of outstanding action items for both System Non-Conformances and Opportunities for Improvement.

Communication

The minutes of the meeting (including action items) will be distributed by the QMS Representative to all meeting participants.

Results of the Management Review Process will be communicated to Council by Top Management.

The QMS Representative will ensure that copies of the Management Review Minutes and related documents are stored appropriately according to *SLD-05A-Control of Documents* and *SLD-05B-Control of Records.*

Associated Documents

SLD-05A-Control of Documents

SLD-05B-Control of Records

References

Operational Plan Section 20 - Management Review

Records

Management Review Meeting Minutes

Related Documents

21. CONTINUAL IMPROVEMENT

21.1 OBJECTIVES AND SCOPE

This Section outlines the processes by which the Town of Prescott identifies, develops, and implements improvements to its QMS. The entire QMS is subject to the approaches and procedures identified in this Section of the Operational Plan.

21.2 ACTIVITY DESCRIPTION

The procedure for Continual Improvement is defined in *SLD-21- Continual Improvement.* It identifies the approach taken to define and implement corrective and preventive actions that are required as a result of the Internal Auditing and Management Review processes (See Sections 19 and 20) or that are identified as opportunities for improvement.

21.3 ASSOCIATED PROCEDURES AND DOCUMENTATION SLD-

21- Continual Improvement

21.4 REFERENCES

Drinking Water Quality Management Standard — Element 21

SLD — 21— CONTINUAL IMPROVEMENT

Purpose

This procedure outlines the processes by which the Town of Prescott identifies, develops, and implements improvements to its Quality Management System (QMS).

This procedure is comprised of two areas of continuous improvement: Corrective Actions and Continual Improvement.

Scope

The entire QMS is subject the continual improvement procedures prescribed herein.

Definitions

Non-conformance is any situation where an aspect of the QMS has not been met according to specified standards and/or procedure.

Corrective action is an action taken to identify the root causes of a problem and apply actions to fix the identified problem.

Preventive action Preventive action is a system to eliminate any cause(s) that would create a potential hazard or undesirable situation.

Opportunity for improvement is an idea, suggestion, or program that serves to improve upon a process that has had a history of stability with few or no identified non-conformances.

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

Procedure

Corrective Action

All Town of Prescott Water Distribution personnel have the authority to communicate any QMS non-conformance found to the QMS Representative, who will determine if Corrective Action is required.

Corrective action will be taken by the QMS representative, or designate, in a timely manner. The QMS representative will determine the actions required to rectify the issue, the personnel responsible for addressing the issue and a resolution date.

Preventative Action

Preventive action involves taking measures to prevent the occurrence of potential nonconformities in the Quality Management System.

Preventive action may be initiated as a result of a breakdown within these areas of the QMS:

- Internal audits
- Management Review
- External audits
- Emergency debriefing
- Customer complaints
- Staff suggestions
- Trends identified in management reports

The QMS Representative shall review all of the above areas annually for potential non-conformities, to determine if any preventive actions are associated with them. The outcome of this review will be documented and any preventive actions will be recorded and implemented.

Continual Improvement

All Town of Prescott Water Distribution personnel have the authority to offer suggestions and identify opportunities for improvement to the QMS and its performance. All suggestions will go to the QMS Representative, who will review them and make appropriate improvements, or may raise these suggestions in the next Management Review Meeting, as applicable.

A review of customer complaints and/or personnel suggestions/comments will be examined as part of the Management Review process and considered as opportunities for improvement.

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Continual improvement will be tracked and measured through: OFI's, corrective actions, Internal/external audits and management reviews.

Best Management Practices

The Town of Prescott will also review best management practices annually through the selection of one distribution system related topic for consideration. This topic will be selected by the ORO and/or 01C. Once the topic has been selected, it will be discussed amongst the water distribution staff for input regarding: relevance, pros & cons, cost effectiveness etc. All information from the discussion will be recorded on a " BMP Consideration Record" and filed for future reference.

Identify and Management of Corrective/Preventative Actions

When a non-conformance item is identified, The Town of Prescott will conduct a "Non-Conformance Resolution" which includes: Identifying non-conformance, root cause analysis, verification of corrective action and preventative action. All "Non-Conformance Resolutions" will be completed within the given period of time and stored within the Town's DWQMS CAF binder.

Associated Documents

SLD-05B-Control of Records

References

Operational Plan Section 21, Continual Improvement

Records