

Identifier: Operational Plan	Revision: 15	Effective Date: April 20, 2018	EGANVILLE DRINKING WATER SYSTEM Number 171-101 OPERATIONAL PLAN Number 171-401
Document File Number: 830.20.10			
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EGANVILLE DRINKING WATER SYSTEM

QUALITY MANAGEMENT SYSTEM (QMS)

OPERATIONAL PLAN



TOWNSHIP OF BONNECHERE VALLEY
WATER & SEWAGE DEPARTMENT
401 WATER STREET
EGANVILLE, ONTARIO
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1. Document History

Document Location


The master electronic version of this document is on the main server located at the Township of Bonnechere Valley Municipal Office and is accessible from any work station. The master printed copy is kept in a binder on the book shelf in the Operations Room of the Eganville Water Treatment Plant, 401 Water St., Eganville. Printed copies should always be checked for the current revision number and date. Refer to the author if you are in any doubt about the accuracy of this document.

Revision History

Revision Number	Revision Date	Summary of Changes	Author
0	Dec. 15, 2009	Creation of original document	Andrew Polley
1	May 24, 2010	Section 16 & 17 modifications	Andrew Polley
2	January 27, 2011	Section 11, 17, 18, & 19 modifications	Andrew Polley
3	March 21, 2011	Section 9, 11, 16, 17 & 19 modifications	Andrew Polley
4	January 16, 2012	Title Page & Header modifications, Section 17 & 19 updates	Andrew Polley
5	August 20, 2012	Annual review and updates	Andrew Polley
6	April 4, 2013	Section 9, 16 & 17 updates	Andrew Polley
7	May 8, 2013	Section 8 & 19 updates	Andrew Polley
8	June 3, 2014	Annual review and updates	Andrew Polley
9	June 23, 2014	Additional updates Sec. 15 & 16	Andrew Polley
10	April 28, 2015	Annual review and updates	Andrew Polley
11	June 23, 2015	Additional updates Sec. 17 & 19	Andrew Polley
12	July 28, 2015	Additional updates Sec. 6 & 7	Andrew Polley
13	August 4, 2016	Annual review and updates	Andrew Polley
14	May 15, 2017	Annual review and updates as required	Andrew Polley
15	April 20, 2018	Annual review and updates as required	Andrew Polley

Approvals

This document and any subsequent revisions require the following approvals:

Name	Title	Signature	Date
Andrew Polley	QMS Representative		April 20, 2018

Distribution

This document has been electronically distributed to:

Name	Title
Daryl Verch	Manager, Water & Sewage Department
Bryan Martin	CAO, Township of Bonnechere Valley

Availability

The Eganville Drinking Water System QMS Operational Plan is available on the Township of Bonnechere web site at <http://www.bonnecherevalleytwp.com/departments/water-sewage/>

The Operational Plan, Figures, Procedures and Appendices are available by request at the Municipal Office, 49 Bonnechere Street East, Eganville, ON K0J 1T0.

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6. Introduction (DWQMS#1)

As outlined in the Ontario Safe Drinking Water Act (SDWA) and associated Regulations the Township of Bonnechere Valley is required to implement and maintain a Drinking Water Quality Management Standard (DWQMS) for the Eganville Drinking Water System.

In accordance with these directives the Operational Plan will serve as a Quality Management System (QMS) Guidance Manual for the Township of Bonnechere Valley. The Plan is written to meet or exceed the requirements of the Ministry of the Environment prescribed standards.

7. Quality Management System Policy (DWQMS#2)

**THE CORPORATION OF THE TOWNSHIP OF BONNECHERE VALLEY
EGANVILLE DRINKING WATER SYSTEM
QUALITY MANAGEMENT SYSTEM POLICY**

The Corporation of the Township of Bonnechere Valley owns, operates and maintains the Eganville Drinking Water System and is committed to:

- **Providing a 'Standard of Care' that is consistent with the Safe Drinking Water Act;**
- **Ensuring the provision of a safe and reliable municipal drinking water supply;**
- **Maintaining and continually improving the Quality Management System; and**
- **At a minimum, to meet all relevant legislation and regulatory requirements.**

**The Corporation of the Township of Bonnechere Valley
By Resolution dated July 21, 2015**

8. Commitment and Endorsement (DWQMS#3)

The system owner and operating authority, the Township of Bonnechere Valley, supports the implementation, maintenance, and continual improvement of a drinking water Quality Management System (QMS) for the Eganville Drinking Water System, as documented in this Operational Plan. Endorsement by the owner, (represented by the Mayor), and top management, (represented by the Chief Administrative Officer and the Water & Sewage Department Manager), acknowledges the need for, and supports the provision of sufficient resources to maintain and continually improve the QMS.

The Designated QMS Representative, appointed by top management, acknowledges the roles and responsibilities of that appointment.

 Date

 Jennifer Murphy, Mayor

 Date

 Bryan Martin, CAO

 Date

 Daryl Verch, Manager

 Date

 Andrew Polley, QMS Representative

Note: A copy of the Resolution of Council dated July 21, 2015 and the original signed and dated “Commitment and Endorsement” document is in the QMS Operational Plan binder and pdf of signed documents are in file 830.20.10 on the BVserver.

9. QMS Representation (DWQMS#4)

The Quality Management System Representative, appointed by Top Management and irrespective of other responsibilities, shall:

- Administer the Quality Management System by ensuring that processes and procedures needed for the Quality Management System are established and maintained;
- Ensure that current versions of documents required by the Quality Management System are being used at all times;
- Ensure that personnel are aware of all applicable legislative and regulatory requirements that pertain to their duties for the Eganville Drinking Water System;
- Promote awareness of the Quality Management System throughout the Water & Sewage Department;
- Report to Top Management on the performance of the Quality Management System and any need for improvement.

10. QMS Document and Records Control (DWQMS#5)

QMS Document and Record identification, retention, storage and disposal control is outlined in the Document Control Procedure, PRO - 01.00, Document Control Table, Appendix 01.01, Records Control Procedure, PRO - 02.00 and Records Control Table, Appendix 02.01.

A comprehensive Document and Records Filing System is in place and is used for both paper and electronic filing. The file index is provided in Appendix 01.02

11. Drinking Water System Process Description (DWQMS#6)

Overview

The Eganville Drinking Water System is owned and operated by the Township of Bonnechere Valley and provides a potable water supply to the residents and business of the Village of Eganville. The system generally consists of a Water Treatment Plant (WTP), a distribution system and a water standpipe.

The WTP, built in 1990, treats water from the Bonnechere River with two Graver Monoplant Package Units, which have a combined capacity of 2,070 m³/day. The distribution system, originally constructed in the mid 1970's consists of approximately 13 km of piping ranging in

diameter from 150 mm to 250 mm with a 300,000 Imperial gallon (1,363 m³) capacity steel standpipe for pressure equalization and supply.

Raw Water Supply

The source water for the Eganville Water System is the Bonnechere River, which originates in Algonquin Park and flows to the Ottawa River.

The water intake consists of an adjustable polyethylene intake structure situated approximately 30 metres offshore. Water flows from the river intake through a 400 mm diameter, 61 m long polyethylene pipe to a screened wet well located within the WTP.

Treatment Process

Raw water is pumped from the wet well through a single header equipped with a flow meter and is treated with sodium hypochlorite (pre-chlorination), PAS-8 (aluminum sulfate based coagulant) and Superfloc C-492PWG (polymer) prior to an in-line static mixer before entering the treatment units (Monoplants).

Two Graver Monoplant package units, each rated for a maximum flow of 1,035 m³/day, for a total flow of 2,070 m³/day, provide coagulation, flocculation, sedimentation and filtration. Each unit consists of one clarifier comprised of a centre cone draft tube, sludge recirculation and mixing zone, flocculation zone and settling zone with 60 degree settling tubes. Clarified water flows through a splitter box to a two compartment, dual media (sand and anthracite) filter. Each filter has an air scour system and a gravity operated backwash system.

Water from each filter unit is continuously monitored for turbidity prior to discharging into the 119 m³ filtered water well. Filtered water is then pumped by three submersible pumps into a splitter box where it is divided between two granular activated carbon (GAC) filters. Finished water from the GAC filters is continuously monitored for turbidity and then treated with sodium hypochlorite prior to being discharged into a series of three unbaffled clear wells and two high lift wells, which have a total volume of 710 m³.

The high lift wells are equipped with three vertical turbine pumps each rated at 26 L/sec which discharge to a common treated water header equipped with a flow meter and a continuous chlorine analyzer prior to discharge into the water distribution system.

Backup Electrical Power Supply

In the case of an electrical supply disruption the water treatment plant is equipped with a permanent 300 Kw diesel powered generator which has the capacity to provide power for the

entire facility including the adjacent Queen St. sewage pumping station. The water standpipe control panel has a UPS and a connection for a mobile generator hookup if required.

Process Waste Residuals Management

Filter backwash water and Monoplant sludge is discharged via piping into a concrete holding tank and then pumped into the sanitary sewer system for treatment at the Eganville Sewage Treatment Plant.

Distribution System and Standpipe

Treated water is pumped from the high lift wells into the distribution system which consist of approximately 13 km of piping, generally ranging in diameter from 150 mm (6”) to 200 mm (8”) with a few pipes that are 250 mm (10”) in diameter. Pipes are generally PVC or ductile iron with the majority being installed in the early 1970’s. There are 65 hydrants and 525 metered service connections on the system serving a population of approximately 1,300. A 300,000 lgal (1,363 m³) water standpipe, built in 1974, is located at a relatively high elevation on the system for pressure equalization and for water supply when the high lift pumps at the WTP are cycled off.

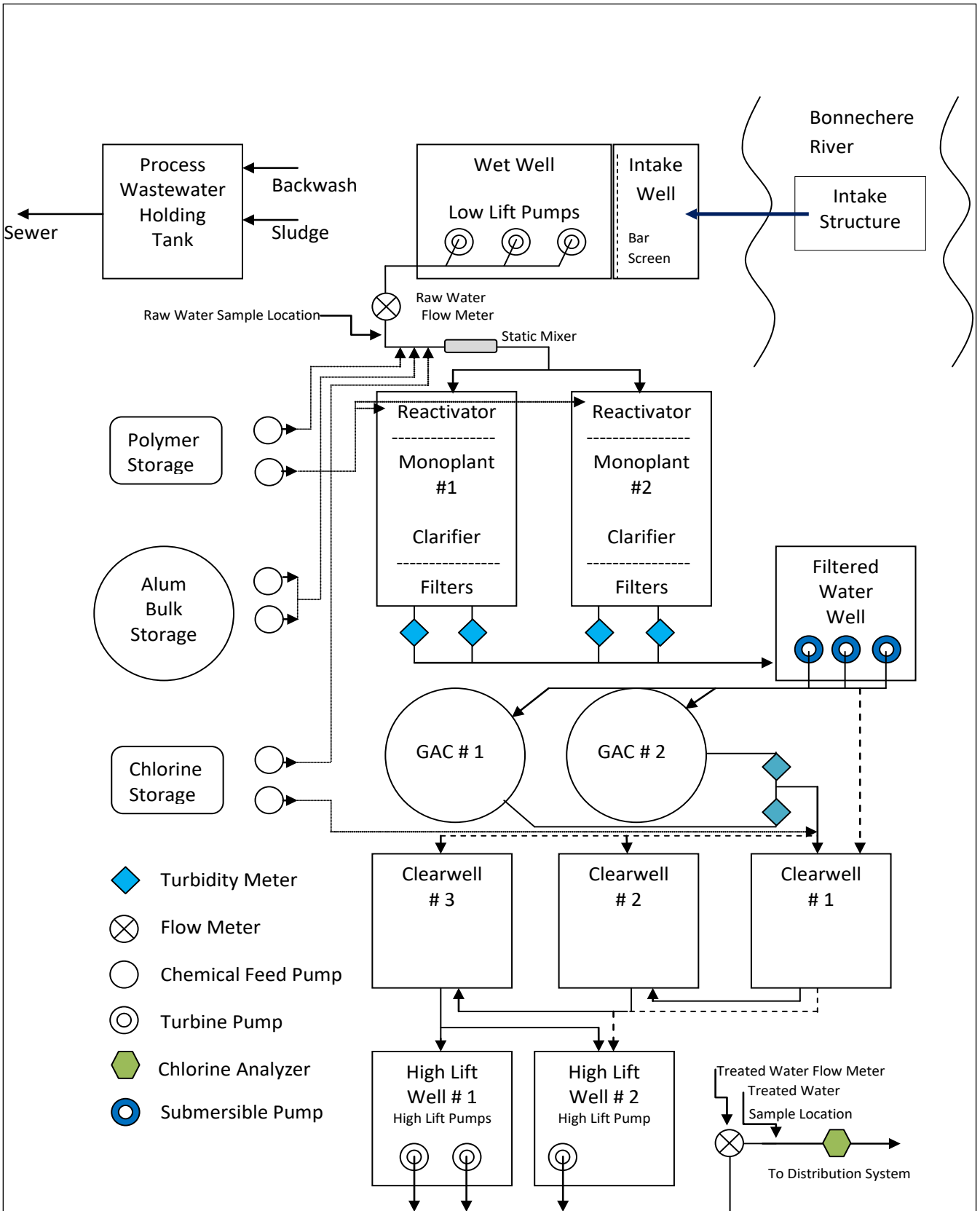
Water Quality Monitoring

An extensive monitoring program is in place for both the treatment process and distribution system. All current Provincial requirements are being met for sampling with the resultant analysis meeting or exceeding the water quality standards.

Process Management

Instrumentation and process control was updated in 2009/2010 with the installation of a new Motor Control Centre (MCC) and a Programmable Logic Controller (PLC). An associated Supervisory Control and Data Acquisition (SCADA) system now enables Operators to have full control over the water treatment process and maintain a current record of all activities.

12. Water Treatment Process Flow Chart



13. Water Distribution System

A map of the Water Distribution System (April 2018) showing the location of the Water Treatment Plant, distribution system piping, main valves, hydrants, service connections and the water standpipe is attached as **Figure 1**).

14. Source Water Overview

General

The Bonnechere River watershed encompasses a total area of approximately 2,400 km² stretching from the headwaters in Algonquin Park to the Ottawa River. The watershed upstream from Eganville meanders through the forested and rocky Precambrian Highlands of the Canadian Shield and widens at several locations into Round Lake and Golden Lake. Golden lake is approximately 12 Km upstream of Eganville. Hurds Creek, which drains Lake Clear, enters into the Bonnechere River approximately 1 Km upstream of Eganville.

The water from the Bonnechere River is typically very low in turbidity, low in colour, slightly basic and low in alkalinity. Temperature fluctuates significantly throughout the seasons ranging from 4° Celsius in the winter to as high as 25° Celsius during the summer. Chemical and bacteriological analysis of the raw water indicates a source of relatively good quality.

Events

Changes in water temperature will impact the treatment process performance and operators must be prepared to make appropriate and timely adjustments to treatment chemicals in response to temperature fluctuations.

Threats

Potential sources of raw water contamination include spills from nearby highway traffic mishaps and a bulk fuel storage depot located just upstream from the water intake.

Due to summer low flow conditions and the shallow nature of the Bonnechere River there is a control dam located just downstream of the intake to maintain the water level. The dam site also includes a small hydro generating station owned and operated by the Township of Bonnechere Valley. The operating requirements of the dam and generating station are designed to maintain a suitable reservoir above the dam.

Some risk of plugging of the intake by water borne debris exists.

Operational Challenges

The Bonnechere River provides high quality source water, which is, for the most part consistently low in bacteriological contamination and turbidity. The most significant challenge related to the source water is related to the seasonal temperature change which requires operator response on chemical feed dosage rates to ensure appropriate coagulation, flocculation, sludge settling and filtration.

15. Risk Assessment & Risk Assessment Outcomes (DWQMS#7&8)

The procedure entitled Hazard Analysis, PRO - 03.00, describes the method of hazard identification, risk assessment, and critical control point determination for the Eganville Water System. The procedure consists of four main exercises: hazard identification, risk assessment, critical control point determination, and critical limit identification.

A Risk Assessment Table, Appendix - 03.01, identifies the potential hazard activity or process step, a description of the event and resultant hazard, the control and response measure, risk assessment and critical control point determination.

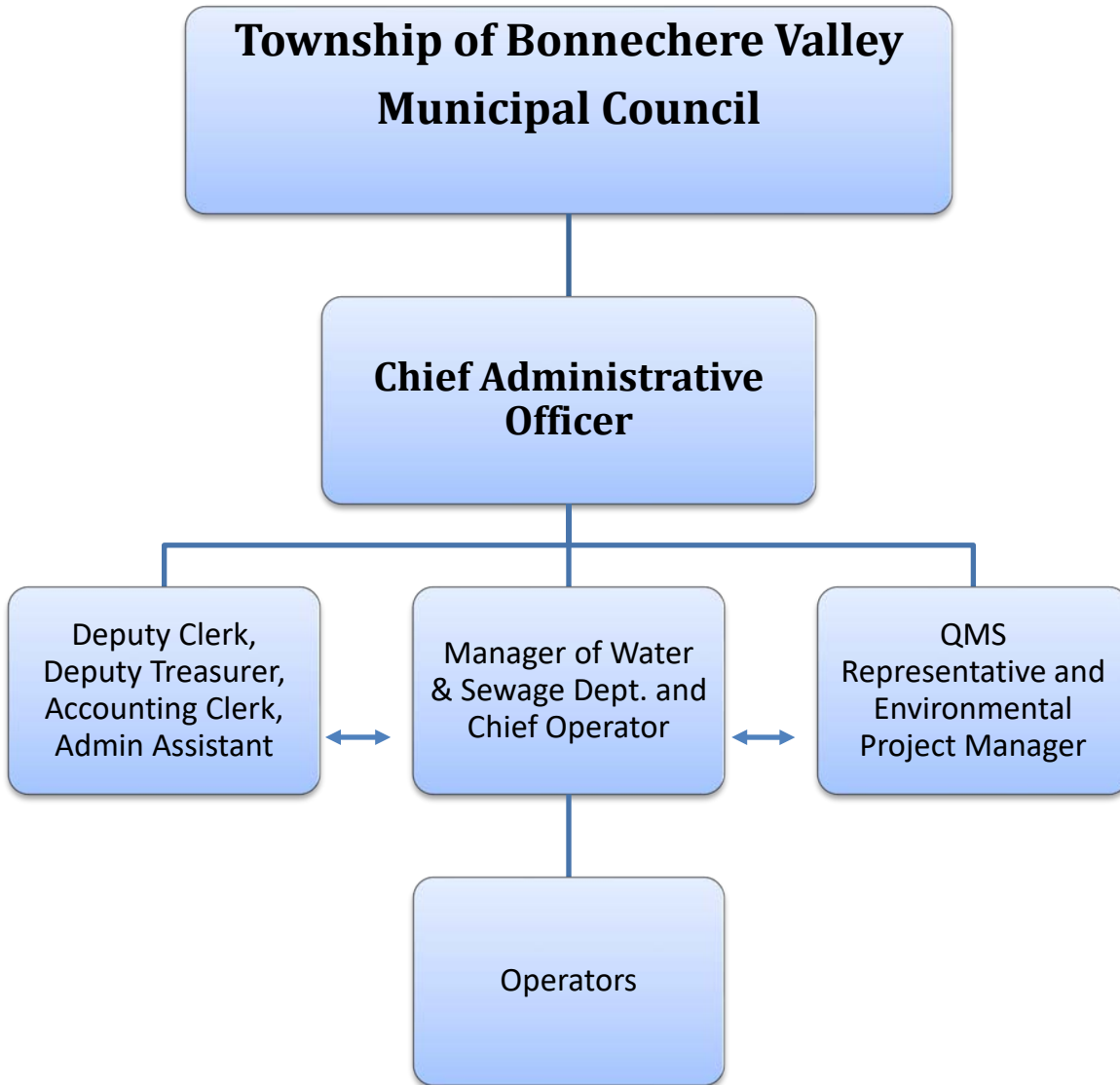
A Critical Control Limits and Summary of Response Procedures Table, Appendix - 03.02, details the critical control limits, monitoring processes and/or procedures and appropriate response procedures.

Critical Limit Response Instructions, PRO - 04.00, provide detailed instructions for the following:

- High Turbidity / Monoplant Filters, Appendix - 04.01
- Treated Water / Low Chlorine Residual (Primary Disinfection), Appendix - 04.02
- Distribution System (Standpipe Low Level) (Water Main Break), Appendix - 04.03
- Distribution System / Low Chlorine Residual (Secondary Disinfection), Appendix - 04.04

16. Organizational Structure, Roles, Responsibilities and Authorities (DWQMS#9)

Organization Chart



Roles, Responsibilities and Authorities

Title	Responsibilities	Authorities
Township of Bonnechere Valley Council (Owner & Operating Authority)	<ul style="list-style-type: none"> • Standard of Care (Safe Drinking Water Act) <ul style="list-style-type: none"> ○ exercise the level of care, diligence and skill in respect of a municipal drinking water system that a reasonably prudent person would be expected to exercise in a similar situation; and ○ act honestly, competently and with integrity, with a view to ensuring the protection and safety of the users of the municipal drinking water system. • Ensuring the provision of safe and reliable municipal water supply to the serviced areas of the Village of Eganville • Ensuring operations are performed according to regulatory requirements • Ensuring that the DWQMS is maintained • Obtaining resources or infrastructure as necessary 	To perform listed responsibilities

Title	Responsibilities	Authorities
Chief Administrative Officer	<ul style="list-style-type: none"> • Same responsibilities as Municipal Council • Provides administrative support and direction • Represents ‘Top Management’ for QMS • Appoints QMS Representative 	To perform listed responsibilities

Title	Responsibilities	Authorities
QMS Representative and Environmental Project Manager	<ul style="list-style-type: none"> • Standard of Care (Safe Drinking Water Act) <ul style="list-style-type: none"> ○ exercise the level of care, diligence and skill in respect of a municipal drinking water system that a reasonably prudent person would be expected to exercise in a similar situation; and ○ act honestly, competently and with integrity, with a view to ensuring the protection and safety of the users of the municipal drinking water system. • Administers the Quality Management System by ensuring that processes and procedures needed for the Quality Management System are established and maintained; 	To perform listed responsibilities

Title	Responsibilities	Authorities
	<ul style="list-style-type: none"> • Ensures that current versions of documents required by the Quality Management System are being used at all times; • Ensures that personnel are aware of all applicable legislative and regulatory requirements that pertain to their duties for the Eganville Drinking Water System; • Promotes awareness of the Quality Management System throughout the Water & Sewage Department; • Reports to Top Management on the performance of the Quality Management System and any need for improvement; • Provides staff with technical and administrative direction related to QMS document preparation • Oversees QMS training for staff; • Prepares, reviews and approves QMS documentation; • Determines when ‘Internal and/or External Audits’ are required and arranges for undertaking; • Completes and documents ‘Internal Audits’ as required; • Prepares and administers Corrective Action Reports (CAR) and/or Opportunity For Improvement reports (OFI); • Ensures ‘Corrective Actions’ and ‘Opportunity For Improvements’ are undertaken; • Determines when ‘Management Reviews’ are required and arranges for meeting with ‘Top Management’; • Prepares agenda and documentation for ‘Management Review’ meeting; • Chairs ‘Management Review’ meeting and takes minutes of proceedings; • Responsible for communication and implementation of ‘Management Review’ action items; • Prepares summary report of the results of the ‘Management Review’ for CAO and Public Works Committee; • Maintains DWQMS accreditation with NSF International Strategic Registrations (NSF-ISR). 	

Title	Responsibilities	Authorities
Water & Sewage Dept. Manager and Chief Operator	<ul style="list-style-type: none"> • Standard of Care (Safe Drinking Water Act) <ul style="list-style-type: none"> ○ exercise the level of care, diligence and skill in respect of a municipal drinking water system that a reasonably prudent person would be expected to exercise in a similar situation; and ○ act honestly, competently and with integrity, with a view to ensuring the protection and safety of the users of the municipal drinking water system. • Represents “Top Management” for QMS • Responsible for the daily operation and maintenance of the water treatment plant, water standpipe and distribution system in accordance with legislated requirements, QMS and industry standards • Reports adverse water quality incidences to regulatory agencies, the owner, top management and the public • Maintains regulatory compliance • Is the Eganville Drinking Water System Overall Responsible Operator • Supervises Operators • Schedules work assignments • Undertakes “On-call” duties after regular hours and on weekends, when scheduled • Monitors water quality and demand • Undertakes the required training to maintain Operator Certification at the level required for the Eganville Drinking Water System • Develops Departmental budget • Communicates with Council about the Drinking Water System and the QMS • Reports and acts on QMS non-conformances • Knowledgeable and compliant with all health and safety requirements • Receives and responds to public complaints 	To perform listed responsibilities
WTP Operator	<ul style="list-style-type: none"> • Under the supervision of the Manager/Chief Operator is responsible for the daily operation and maintenance of the Eganville Drinking Water System 	To perform listed responsibilities

Title	Responsibilities	Authorities
	<p>in accordance with legislated requirements, QMS and industry standards</p> <ul style="list-style-type: none"> • Undertakes the required training to maintain Operator Certification at the level required for the Eganville Drinking Water System • Performs the duties of the Overall Responsible Operator (ORO) and Operator in Charge (OIC) when designated • Undertakes “On-call” duties after regular hours and on weekends, when scheduled • Knowledgeable and compliant with all health and safety requirements 	

17. Competencies (DWQMS#10)

The following is a brief overview of the ‘Required Competencies’ for the management and operational staff of the Eganville Drinking Water System. Additional details are in the individual job description files.

Role	Required Competencies
<p>Manager and Chief Operator</p>	<ul style="list-style-type: none"> • WTP Class II Certification • Distribution Class 1 Certification • Overall Responsible Operator (ORO) • Operator in Charge (OIC) • Administrative Skills and Experience (includes working knowledge of MS Word / Excel and Cartegraph OMS) • Supervisory Skills and Experience • WHMIS 2015 Certification • Transportation of Dangerous Goods Certification • SCADA Operational Knowledge • Confined Space Entry Certification • Traffic Control Certification • First Aid (including CPR) Certification • QMS Awareness

Role	Required Competencies
Class II Operator	<ul style="list-style-type: none"> • WTP Class II Certification • Distribution Class 1 Certification • Overall Responsible Operator (ORO) • Operator in Charge (OIC) • WHMIS 2015 Certification • SCADA Operational Knowledge • Confined Space Entry Certification • Traffic Control Certification • First Aid (including CPR) Certification • Working knowledge of MS Word / Excel and Cartegraph OMS • QMS Awareness
Class I Operator	<ul style="list-style-type: none"> • WTP Class I Certification • Distribution Class 1 Certification • WHMIS 2015 Certification • SCADA Operational Knowledge • Confined Space Entry Certification • Traffic Control Certification • First Aid (including CPR) Certification • Working knowledge of MS Word / Excel and Cartegraph OMS • QMS Awareness

Certification and Training					
Employee	Role	Certification level	Expiry Date	Hours of Training Required	Training Cycle
Daryl Verch	Manager & Chief Operator	WT 2 - #6578 WD 1 - #6579	Aug. 31, 2019 Aug. 31, 2019	105	Aug. 31, 2016 to Aug. 31, 2019
Dave Loader	Operator	WT 2 - #64885 WD 1 - #68239	Sept. 30, 2019 Nov. 30, 2019	105	Sept. 30, 2016 to Sept. 30, 2019
Cody Tiedemann	Operator	WT 2 - #84733 WD 1 - #89854	Nov. 30, 2018 June 30, 2018	105	Nov. 30, 2015 to Nov. 30, 2018

Competencies of Operators are maintained and further developed as outlined in the Training and Certification Plan (SOP 240.60.01)

Detailed certification and training records are maintained for all operations staff and are on file (240.50) at the Eganville WTP Office.

18. Personnel Coverage (DWQMS#11)

The Eganville Drinking Water System, which includes the water treatment plant, the Bruce St. standpipe and the distribution system, is normally staffed with a Chief Operator / Manager and two Operators from 7:30 am until 4:00 pm Monday to Friday. The on-call Operator attends the water treatment plant on the weekend and statutory holidays to check on the operation and perform any necessary tasks.

The designated Overall Responsible Operator (ORO) and the Operator in Charge (OIC) is posted on the Work Schedule calendar. The OIC designation is shared between the Chief Operator and the Level 2 Operators.

The water treatment plant is equipped with alarms on all of the critical process equipment including the Bruce St. standpipe water level. After hour's coverage (nights, weekends and statutory holidays) is carried out by the on-call Operator who carries a dedicated cell phone. In the event of an alarm situation the alarm company will call the on-duty Operator. The Operator will respond immediately (within 15 minutes) to the Water Treatment Plant to assess and correct the alarm situation.

After hour emergency calls, i.e. service line breaks, are directed to the cell phone of the on-duty Operator. The Operator will respond accordingly to the emergency call.

In the unforeseen circumstance where all Operators are unavailable to operate the system or respond to an emergency the CAO would contact one of the adjacent Municipalities and/or OCWA for assistance. An informal agreement is in place with the City of Pembroke to provide Operators as required.

19. QMS Communications (DWQMS#12)

Relevant aspects of the Quality Management System are conveyed on a regular basis by Top Management, with the assistance of the QMS Representative, to the various parties associated with the Eganville Drinking Water System.

These would include:

- The Owner and Operating Authority, represented by the Mayor, Council and CAO.

- The Water and Sewage Department staff.
- Essential Supply and Service Providers.
- The Public, those connected to the Eganville Drinking Water System.

QMS Communications Procedure (PRO - 05.00) outlines the methods used to effectively communicate the relevant aspects of the Quality Management System to the target audiences.

20. Essential Supplies and Services (DWQMS#13)

Supply and Service Providers

Appendix A. to the QMS Operational Plan provides a current list of Supply and Service Providers. The list provides the nature of the supply or service, the primary provider and the contingency provider if applicable.

Quality of Supplier Products and Services

Assurance of the quality of essential supplies and services is achieved through review of applicable accreditation, licenses and certifications as appropriate.

Suppliers of process chemicals are required to provide a Certificate of Analysis and verification that the product meets NSF/ANSI 60 Drinking Water Treatment Chemicals standards.

21. Review and Provision of Infrastructure (DWQMS#14)

In 2013 the Municipality completed a detailed Asset Management Plan for the Water and Sewage Infrastructure in the Village of Eganville based on the Ontario Ministry of Infrastructure's "Building Together: Guide for Municipal Asset Management Plans".

The Asset Management Plan covers a ten year period and has been structured as a 'living document'. It is also structured to allow multiple asset types to be added in the future, including new information (e.g., building condition assessments).

The Asset Management Plan, or components of it, will be re-evaluated and updated on an annual basis as part of the municipal budgeting process.

Reference should be made to Procedure 06.50 'Infrastructure Annual Review' for additional detail.

A copy of the 'Asset Management Plan for Water and Sewage Infrastructure' December 2013, prepared by J.L. Richards & Associates Ltd. is on file at the Water Treatment Plant.

22. Infrastructure Maintenance, Rehabilitation and Renewal (DWQMS#15)

Planned Maintenance

Planned maintenance is detailed and scheduled utilizing an asset management program (Cartegraph) accessible from each computer work station in the Operations Room of the WTP. Scheduled tasks are typically defined by manufacturer's literature when available and revised (or created) as needed according to operator experience / observations. Planned maintenance tasks are communicated to the operator responsible by issuance of work orders from the Manager. Completed work orders are reviewed and signed off by the Manager. A summary of the water treatment plant and distribution system planned maintenance program is provided in Procedure 06.00 Infrastructure Maintenance.

Unplanned Maintenance

Unplanned maintenance tasks result from equipment malfunction or breakage. Unplanned maintenance is authorized by the Manager or the Overall Responsible Operator as necessary. The Overall Responsible Operator typically responds to unplanned maintenance during normal working hours while the on-call operator responds during off-hours. Documentation of unplanned maintenance tasks is accomplished by the use of Work Orders.

Measures to prepare for and expedite unplanned maintenance includes equipment redundancy, spare parts inventory, availability of updated plans as well as documented repair and safety procedures.

Rehabilitation and Renewal

Within the 'Asset Management Plan for the Water and Sewage Infrastructure in the Village of Eganville' assets are identified that require rehabilitation or renewal. The annual review identifies the current needs of the system and reports these recommendations to the Public Works Committee for consideration in their budget deliberations.

23. Sampling, Testing and Monitoring (DWQMS#16)

The routine sampling program for the Eganville water system is based on current legislative requirements and is described in detail in Procedure 07.00.

Specific sampling and monitoring procedures are established for operating the Eganville water system under abnormal circumstances. A detailed set of instructions for sampling and monitoring in response to adverse water quality is outlined in Procedure 07.01. These steps ensure that all legislative requirements are met at any time the plant is producing water outside of compliance limits.

Laboratory results are acquired from in-house analysis, as well as from a selected accredited laboratory. In-house laboratory results are entered onto a weekly log sheet, reviewed by the manager and then filed. Bacteriological and chemical results from the accredited laboratory are reviewed by the manager and then filed.

All analytical results are summarized and discussed in the 'Eganville Drinking Water System' Annual Summary Report. The Report is presented to the Public Works Committee and is posted on the Municipal web site.

24. Measurement and Recording Equipment Calibration and Maintenance (DWQMS#17)

Methods of measurement and recording equipment calibration and maintenance are described in detail in Procedure 08.00.

25. Emergency Management (DWQMS#18)

Emergency Management Procedure 09.00 outlines the conditions in the Eganville Drinking Water System that are considered to be major emergencies. The procedure also lists those persons responsible for initiating the response and recovery measures, as well as the process to be followed if emergencies escalate. The Emergency Contact List is kept up to date and is located in the Procedure.

Emergency response procedures are reviewed with all operators on an annual basis.

The Eganville Water Treatment Plant (WTP) Operations Manual contains Contingency Plans and Procedures for the provision of adequate equipment and material to deal with emergencies, upsets and equipment breakdown. This manual is located at the WTP Office.

A chemical spill response Standard Operating Procedure (SOP) has been developed with respect to the receiving, transfer, storage and use of the process chemicals used at the WTP.

In a situation where the emergency has escalated or is an extraordinary event The Township of Bonnechere Valley Emergency Management Plan may be initiated to provide additional support.

26. Internal Audits and Management Reviews (DWQMS#19 & 20)

Internal Audits and Management Reviews are conducted at least once every twelve months to determine the effectiveness of the QMS, and to explore opportunities for improvement.

Internal Audits and Management Reviews, in addition to Third-party Audits, are mechanisms used to fulfill the “check” and “improve” imperatives of the quality management system.

Detailed procedures for conducting internal audits are outlined in Procedure 10.00, and management reviews are detailed in Procedure 11.00.