Township of Selwyn
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Drinking Water Quality Management System

Operational Plan

Operating Authority # 149 – OA2

DWQMS 2.0

Township of Selwyn

Lakefield Drinking Water System

and

Woodland Acres Subdivision Distribution System

October 2026; version 1.6
Resolution No. 2024 – 181

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Table of Revisions

Revision #	Date	Section	Change	Approved By
0	May 2024	3,4,6,9,11,13, 16,17,18	Developed OP for Limited Scope Transitional (LST) Audit	A. Tobin
1; version 1.1	Sept & Oct 2024	1,2,5,7,8,10, 12,14,15,19,20,21	Added elements not included in LST Audit	A. Tobin
		6.1.5	Minor edits based on findings from limited scope audit; revised "continually" to "continuously" and added that chlorine level is included in the continuous monitoring.	A. Tobin
		6.2.4	Added continuous monitoring of free chlorine residual and edited to reflect pressure is continuously monitored at Woodland Acres	
		Appendix 1 & 3	Revised position title of "Water and Wastewater Operations Coordinator" to "Operations Lead – Water and Wastewater"	A. Tobin
		Appendix 1	Added "make recommendations to Council…" and "support recommendations to Council…" to the Responsibilities of the CAO and Manager of Financial Services respectively	A. Tobin
		Appendix 1	Revised "authority to make emergency declarations" to "authority to recommend to the Mayor…"	A. Tobin
		9.0	Included reference to Owner (Council) decision-making authority to be made via Council Resolution	
2; version 1.2	October 2024	Title Page	Added resolution number referring to council endorsement of full Operational Plan	A. Tobin
3; version 1.3	November 2024	5, 7, 14, 15, 20, 21	Updated SOP number in "Related Documents" section to reflect new version of SOP	A. Tobin

		7, 15, 21 Appendix 3	Added reference to new documents created in response to external audit findings Revised Organizational Chart to clearly identify who is Top Management and who is Owner	A. Tobin A. Tobin
4; version 1.4	January 2025	13 Title Page Appendix 1 Various sections 9.3 16.0 / 17.0 Related Document sections	Added SOP 22-002 to related documents Revised resolution number from 2024-179 to 2024-181 Added "Member of Top Management as defined to DWQMS" to Responsibilities of Manager of Public Works, Manager of Financial Services, and Chief Administrative Officer and that each shall undertake management Review. Added "Participate in Management Review" to Supervisor Responsibilities. Updated SOP #s throughout to reflect most recent versions Revise "Participation in Management Review" to "Undertake Management Review" Moved reference to "Microbiological Sampling" SOP to Element 16 from Element 17	A. Ernst A. Ernst A. Ernst A. Ernst A. Ernst
5; version 1.5	June 2025	8.0 13.0	Revised description of critical control points for Woodland Acres and updated SOP references Removed Generator Failure as a critical control point for Lakefield Drinking Water System (SOP-11-002) Updated SOP reference for Chemical Deliveries – Lakefield WTP	A. Ernst

6; version 1.6	Oct 2026	Element 3 All Elements Various Elements	Signatures from new Members of Top Management and Interim Manager of Financial Services Added the word Element to all Elements Minor grammar edits to various Elements	A. Schoenleber

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Element 1.0 Quality Management System

Purpose

The purpose of this Operational Plan is to describe the Quality Management System developed and implemented by the Township of Selwyn ("Township" or "Selwyn") for the operation of drinking water systems owned by the Corporation of the Township of Selwyn. The policy and procedures outlined in this Operational Plan are in accordance with the requirements of the Drinking Water Quality Management Standard (DWQMS).

Scope

The Operational Plan covers all activities and employees associated with the operation and production of safe drinking water for the Township. This includes the Lakefield Drinking Water System (DWS# 220000488) and the Woodland Acres Subdivision Distribution System (DWS# 210001503). The Operational Plan also covers the associated storage, pumping, and distribution systems. The Operational Plan has been developed to meet the requirements of the DWQMS standard and as a requirement under the Municipal Drinking Water Licensing Program directed by The Safe Drinking Water Act. The Township of Selwyn is the Owner and Operating Authority of the municipal drinking water systems.

Element 2.0 Quality Management System Policy

The Township is committed to managing the drinking water system on behalf of its residents by establishing, maintaining, and continually improving its Quality Management System to always ensure its users have access to clean, safe drinking water. Consumer confidence in drinking water quality shall be achieved through a proactive approach to meet or exceed applicable drinking water legislation, regulations, and standards. Drinking water quality is ensured by a comprehensive risk-based process control system and is staffed by competent employees who are committed to providing reliable, safe drinking water to the Village of Lakefield and the Woodland Acres subdivision.

Element 3.0 Commitment and Endorsement of Operational Plan

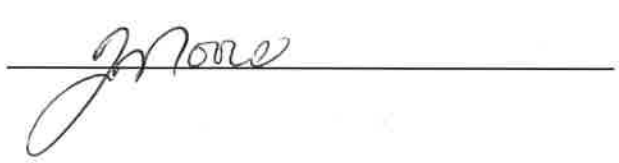
In accordance with Element 3.0 of the Drinking Water Quality Management Standard, the Township of Selwyn, as the Owner of the drinking water systems, supports the implementation and maintenance of a Quality Management System (QMS), as documented in this Operational Plan. This commitment by Council and Top Management of the Township involves:

- ensuring that a QMS is in place that meets the requirements of the DWQMS,
- ensuring that the Operating Authority is aware of all applicable legislative and regulatory requirements,
- communicating the QMS according to the procedure for communications,
- determining, obtaining, or providing the resources needed to maintain and continually improve the QMS.

Active participation in the development and/or review of policies that promote continual improvement is encouraged. Endorsement by Council, via resolution, and Top Management, by signing below, acknowledges the need for, and supports the provision of, sufficient resources to maintain the QMS.

Top Management

The Corporation of the Township of Selwyn
Chief Administrative Officer, Treasurer
Jennifer Moore



Date

Oct 20/2024

The Corporation of the Township of Selwyn
Manager of Public Works
Adam Tobin



Date

Oct 19th, 2026

Element 4.0 Quality Management System Representative

The Township's Water and Wastewater Supervisor was appointed to the role of the Quality Management System Representative. As the QMS Representative, the Water and Wastewater Supervisor has the responsibility and authority to:

- Ensure that the processes required by the DWQMS are established, implemented, and maintained
- Ensure that the most current version of documents required by the DWQMS are always in use
- Ensure that all personnel are aware of applicable current regulatory requirements regarding the operation of the drinking water system
- Ensure the awareness and the effectiveness of the QMS throughout the operating authority
- Report to Top Management on the performance of the QMS and any need for improvement
- The Manager of Public Works is designated as an alternate QMS Representative

Element 5.0 Document and Record Control

Purpose

This Element describes the method used for the control of documents and records for the Lakefield Drinking Water System and the Woodland Acres Subdivision Drinking Water system. Proper maintenance of documents and records is critical for conformance with the DWQMS and for compliance with drinking water legislation.

Scope

This procedure is applicable to the data and documentation described within this Operational Plan as being used or generated during the water treatment and distribution process.

Related Documents

Drinking Water Quality Management Standard - Element 5

SOP-05–003 Document and Record Control

General

Effective control of the document versions and changes to data and documentation is essential to DWQMS. Therefore, the Water and Wastewater

Supervisor will implement and maintain a system that exercises these controls throughout the water treatment and distribution process.

Current versions of documents will be made available at all locations where operations affecting the drinking water system are performed.

Element 6.0 Drinking Water System

Purpose

This Element describes the drinking water systems owned and operated by the Township of Selwyn. This Element documents a description of the drinking water system as prescribed by the DWQMS.

Scope

The Lakefield Drinking Water System and the Woodland Acres Subdivision Drinking Water systems are owned and operated by the Corporation of the Township of Selwyn. This includes the treatment plant, storage and pumping facilities, trunk and distribution water mains, and individual water services up to the private property line. Water meters within buildings, used as consumption measurement devices for billing purposes, are also owned by the Township.

Responsibilities and Authorities

It is the responsibility of the Water and Wastewater Supervisor to ensure this Element is kept up to date. Any changes to the drinking water system must be changed in accordance with the document control procedures shown in paragraph 5 of this Operational Plan.

Related Documents

Drinking Water Quality Management Standard – Element 6

Operational Plan Element 5 – Document and Records Control Procedure

6.1 Lakefield Drinking Water System

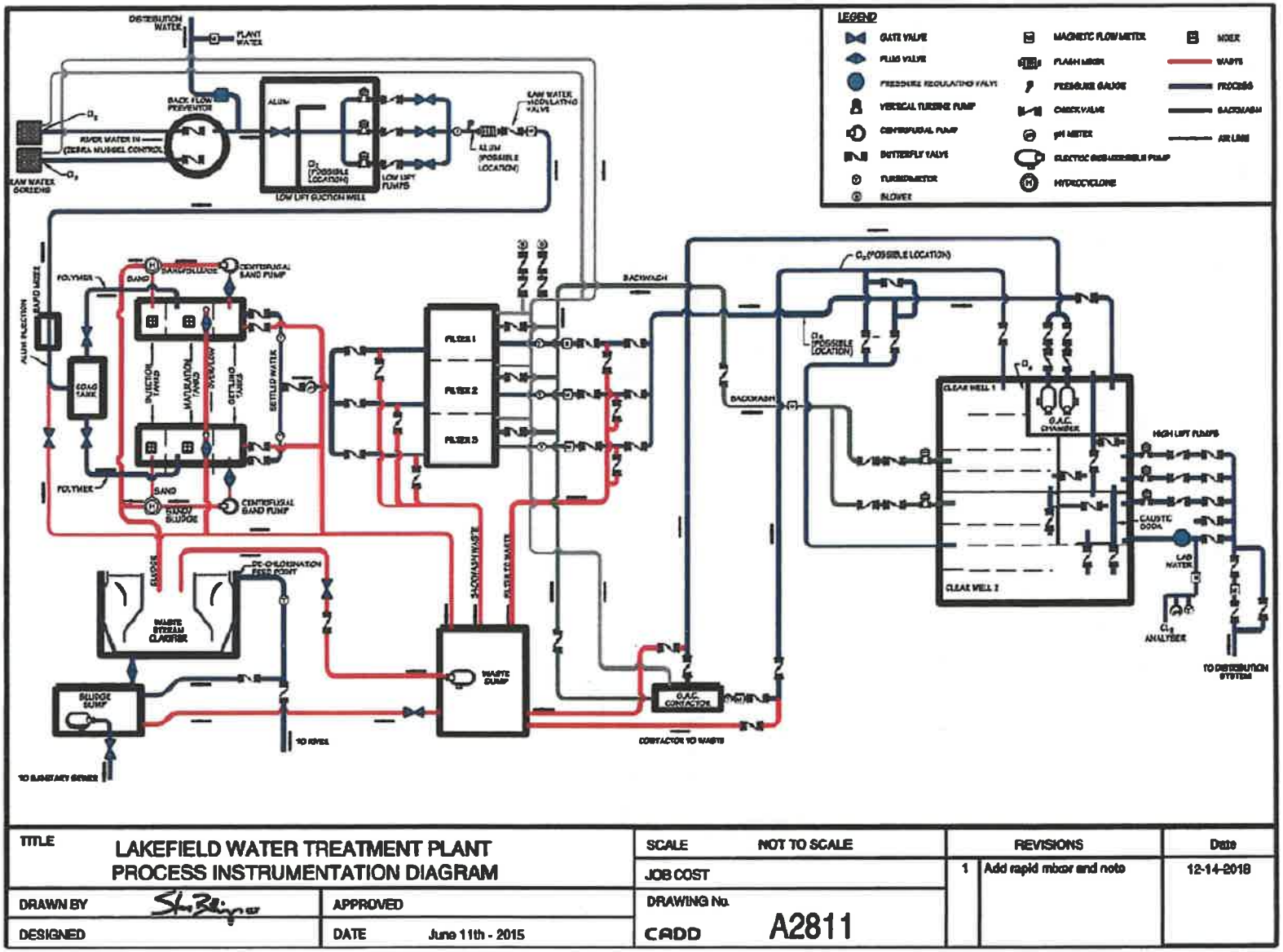
6.1.1 Water Treatment Plant

The Lakefield water treatment plant is located at 13 Water Street North and consists of dual intakes from the Otonabee River, a low-lift pumping system located within the water treatment plant, a conventional treatment plant with chemical coagulation, ballasted flocculation/sedimentation (Actiflo®), dual media filtration, and chlorine disinfection. The filters and low-lift pumps have a rated capacity of 3,700 m^3/d. The Actiflo® units have a capacity of 4,500 m^3/d. The plant has a two-celled baffled clearwell with a total capacity of 1,000 m^3, and a high-lift pumping facility discharging to the distribution system. (See Figure 1 for the plant's process schematic). The plant utilizes a granular activated carbon (GAC) contactor on a seasonal basis, to aid in controlling compounds that cause taste and odour issues in warmer temperatures.

Acidified Aluminium Sulphate is used as the primary coagulant. A dry polymer is converted to aqueous solution on site, and this solution is used as a coagulant aid in the Actiflo® process. Free chlorine (applied as liquid sodium hypochlorite) is used for primary and secondary chlorine disinfection. Caustic soda (liquid sodium hydroxide) is used for pH adjustment and corrosion control.

The rated capacity of the water treatment plant is 3,594 m^3/day. The Permit to Take Water (#5485-BGRRST; valid until October 8, 2029) currently authorizes water taking at 2,500 L/m (3,594 m^3/day). The system is classified as Water Treatment 2, Water Distribution 2.

Figure 1 - Lakefield Water Treatment Plant Process Schematic



TITLE: LAKEFIELD WATER TREATMENT PLANT PROCESS INSTRUMENTATION DIAGRAM		SCALE: NOT TO SCALE	REVISIONS		Date
		JOB COST	1	Add rapid mixer and note	12-14-2018
DRAWN BY: SL Blizzard	APPROVED	DRAWING No.			
DESIGNED	DATE: June 11th - 2015	CADD: A2811			

6.1.2 Water Storage Tanks and Reservoirs

Storage is used to supplement supply during times of high water-demand and in emergency situations such as firefighting. Treated water is stored at two distribution system reservoirs:

- The standpipe located at 121 Strickland Street, has a total volume of 2700m^3 and 900m^3 effective volume. The standpipe is currently off-line.
- The elevated tank located at 3362 Lakefield Road, has a total volume of 2750m^3 and 2750m^3 effective volume.

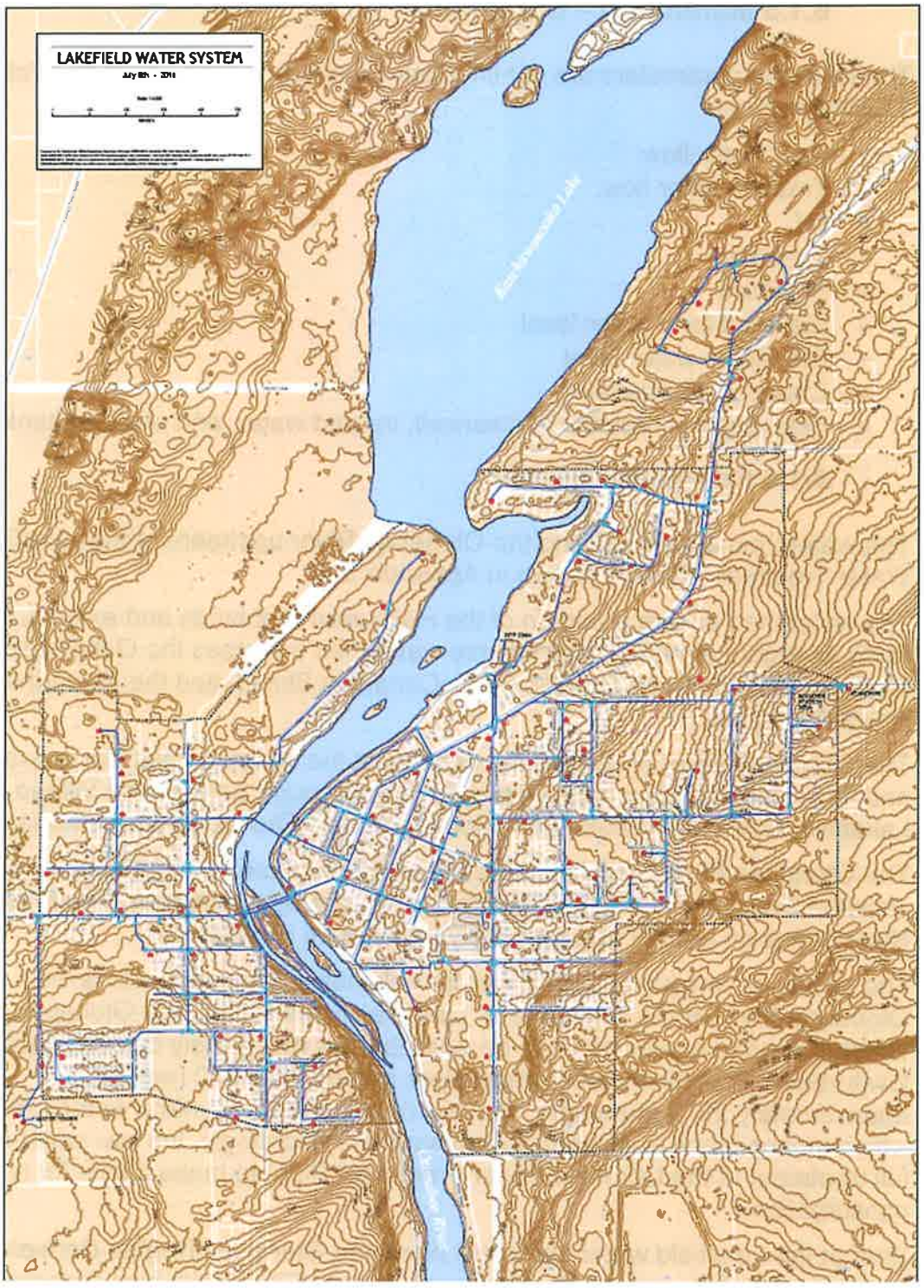
6.1.3 Water Pumping Stations

There is a water booster pumping station at the corner of Strickland Street and Rolliston Street. It is in a locked vault, below grade, at approximately 4 Rolliston Street.

This station has the capability, when required, to pump water from the lower pressure zone to the higher-pressure zone. Currently this station is off-line as adequate pressure is being maintained by the level of the elevated tank.

6.1.4 Water Distribution System – Lakefield

The water distribution system consists of approximately 22 km of watermains, 110 hydrants and approximately 1100 individual water service connections.


LAKEFIELD WATER SYSTEM

6.1.5 Monitoring – Lakefield

The following parameters are continuously monitored at the Lakefield Water Treatment Plant:

- Raw water flow
- Treated water flow
- pH
- Turbidity
- Pressure
- Elevated tank water level
- Standpipe water level
- Chemical tank levels
- Free chlorine residual of clearwell, treated water, and elevated tank

6.1.6 Raw Water Supply

The watershed area supplying the Otonabee River upstream of the Lakefield Water Treatment Plant is shown in Appendix 2.

The watershed covers a portion of the Haliburton Highlands and extends as far north as Algonquin Park. This diverse watershed traverses the Oak Ridges Moraine, Peterborough Drumlin Field, Canadian Shield, and the Kawartha and Haliburton Lakes.

The Otonabee River originates in Lakefield at the outlet of Lake Katchewanooka and flows south to Rice Lake. The river flows through Selwyn, the Village of Lakefield, Cavan-Millbrook-North Monaghan, and Otonabee-South Monaghan.

The Otonabee River is 45 kilometres in length and has 25 tributaries including Jackson Creek, Meade Creek, Bears Creek, and Squirrel Creek. The Otonabee River drains an area of approximately 945 square kilometres.

The source of raw (untreated) water for Lakefield's drinking water is the Otonabee River at the discharge of Lake Katchewanooka. The Otonabee River water is of good quality and can be described as moderately coloured water of low turbidity. The river water temperature ranges from 0°C (winter) to approximately 29°C (summer). The raw river water is a surface water supply, which means that it is an unprotected source. Accordingly, the raw water requires full treatment at the Lakefield Water Treatment Plant to make it safe for human consumption.

Staff at the Lakefield water treatment plant, the Otonabee Region Conservation Authority (ORCA), and the Peterborough County-City Health Unit (beaches only) monitor the river water quality. The watershed is protected by planning and approvals processes through the Township and ORCA. Since 1988, ORCA has

monitored water quality in the Otonabee watershed under the Watershed 2000 program and the Provincial Water Quality Monitoring Network.

6.1.7 General Characteristics of Raw Water

The source of raw water is the Otonabee River. A brief description of the water characteristics as described in the First Engineers' Report for the Township of Selwyn, dated January 2001:

Parameter	Unit	Common Low Value	Common High Value
Turbidity	NTU	0.42	2.74
Colour	TCU	<5	23
pH	No unit	7.7	8.5
Alkalinity	mg/L	66	93

6.1.8 Connections to Other Drinking Water Systems

The existing distribution system in Lakefield extends to supply Lakefield College School, which is in the adjacent Township of Douro-Dummer, north of Selwyn. The watermain is owned and operated by the Township of Selwyn as an extension to the Lakefield System.

6.1.9 Historical, Seasonal, or Common Event-Driven Fluctuations

Type of Fluctuation	Description	Operational Challenge
Historical Variation	Introduction of zebra mussels into source water has decreased turbidity. The penetration of sunlight further into the water column allows deep-water algae to proliferate.	Algae and zebra mussel decay can cause geosmin and 2-MIB formation. These compounds are linked to taste and odour complaints.
Seasonal Variation	With warmer source water there is an increase in taste and odour complaints.	The Granular Activated Carbon (GAC) filter can be activated during the summer months to reduce

		taste and odour-causing compounds.
Seasonal Variation	There is an increased demand for water during the summer.	Seasonal lawn-watering restrictions exist to promote conservation.
Seasonal Variation	There is increased potential for algal blooms in the summer.	There is an increase of monitoring and sampling for harmful algal compounds in raw water. Further outlined in SOP – 20 – 002.
Event-Driven Fluctuation	Frazil ice can occur on very cold and clear winter nights before the river freezes over.	The ice can clog the intake pipes during the night. To prevent clogging, it may be necessary to perform the blow back process according to the Operations & Maintenance Manual.
Event-Driven Fluctuation	Upstream spill	A short-term water treatment plant shut down may occur, provided that the WTP is notified by outside sources about the contamination in a timely manner, and that the contamination has not been pumped into the treatment system.
Event-Driven Fluctuation	Flooding and heavy rainfall may result in large increases in turbidity.	The treatment strategy would need to be altered to adjust for the increased turbidity. Increases in coagulant and chlorine dosages, and reducing the treatment speed to allow for greater reaction time may reduce the turbidity to normal plant effluent levels.

6.1.10 Operational Challenges and Threats

The primary threats to the safety of the water quality from the Otonabee River are:

- E. coli
  - Proper operation of the treatment process includes multiple barriers that are expected to eliminate this threat

- Cryptosporidium
  - Proper operation of the treatment process of chemically-assisted filtration systems are expected to eliminate this threat

- Disinfection by-products (DBPs)
  - Optimization of processes that minimize the organic content of water before disinfection can minimize production of DBPs

6.2 Woodland Acres Subdivision Distribution System

6.2.1 Drinking Water Supply

The Peterborough Water Treatment Plant supplies potable water to the Township of Selwyn's Woodland Acres subdivision. The subdivision is located on Woodland Drive and is connected directly to the Peterborough water distribution system. The City of Peterborough is responsible for the treatment and supply of potable drinking water, while the Township is responsible for distribution, maintenance, monitoring, and testing as per regulations. The Township of Selwyn is the owner and operating authority of this system as defined by the DWQMS and is also responsible for capital infrastructure rehabilitation or replacement. The distribution system is classified as Water Distribution 2.

6.2.2 Water Pumping Stations

The water booster pumping station is located at 218 Woodward Avenue.

6.2.3 Water Distribution Piping System

The water distribution system consists of approximately 4.65 kilometres of watermain, 26 hydrants and approximately 350 water service connections. See Figure 2a.

6.2.4 Monitoring

The following parameters are continuously monitored at Woodland Acres:

- Free chlorine residual
- Pressure

The following parameter is routinely monitored at Woodland Acres

- Flow rate

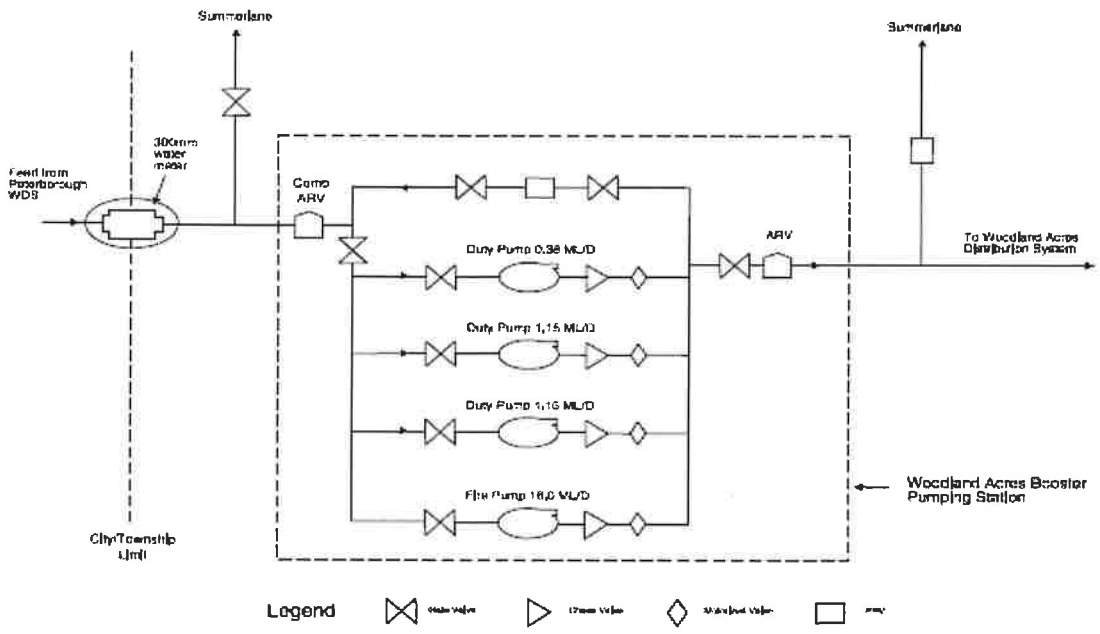
6.2.5 Operational Challenges and Threats

Maintaining water quality and minimum chlorine residual are the most significant challenges in the Woodland Acres distribution system.

The single source of water supply is the most significant threat to the Woodland Acres distribution system. The City of Peterborough has been named as a critical supplier under Element 13 of the DWQMS.

Figure 2 - Woodland Acres Distribution System Process Schematic

Woodland Acres
Water Distribution System Schematic



PETERBOROUGH UTILITIES COMMISSION

TITLE		No.	REVISION	DATE
Woodland Acres Water Distribution System Schematic		1.	Drawing Created	2019-11-26
DRAWN BY Mike Istchenko	SCALE NTS	2.		
DESIGNED	JOB COST	DRAWING No.		
APPROVED	DATE 2019-11-26	CADD	A3099	

Figure 2a - Woodland Acres Distribution map



Element 7.0 Risk Assessment Procedure

Purpose

The risk assessment procedure describes the method used to analyze risks associated with the drinking water system. This includes a process-based system for risk identification and risk assessment, Critical Control Point (CCP) and CCP threshold limits.

Scope

This procedure is applicable to the risk identification, risk assessment and CCP's in the drinking water systems including treatment, storage, pumping and distribution.

Related Documents

Drinking Water Quality Management Standard - Element 7

SOP-21-003 Risk Assessment

Risk Assessment Annual Review Form

Appendix 4-MECP document: Potential Hazardous Events for Municipal Residential Drinking Water Systems to Consider in the DWQMS Risk Assessment April 2022

Element 8.0 Risk Assessment Outcomes Procedure

Purpose

This element details the outcomes from the risk analysis procedure in Element 7 of this Operational Plan. The results include a list of ranked hazards with appropriate control measures, CCPs, control limits for CCPs, monitoring methods, and methods used for recoding and reporting deviation from CCP limits.

Scope

This Element is applicable to the risks identified by the risk analysis process as outlined in Element 7 of this Operational Plan, which covers the drinking water systems including treatment, storage, pumping, and distribution.

Related Documents

Drinking Water Quality Management Standard - Element 8

SOP-21-003 Risk Assessment

Procedure

Once a drinking water risk has been defined in Element 7 as a Critical Control Point, it shall be monitored and controlled according to the individual Standard Operating Procedure (SOP). The SOPs shall include a description of the associated hazards and risk of the CCP, establish a critical control limit, define procedures to monitor the CCP, document the procedure for a deviation and the associated reports required for a deviation.

The following drinking water risks have been identified as Critical Control Points for the Lakefield Drinking Water System:

- Loss of Coagulant or Coagulant Aid SOP-02-002
- High Filter Turbidity SOP-12-002
- Primary Chlorine/ Secondary Chlorine Disinfection Failure SOP-13-002

The following drinking water risks have been identified as Critical Control Points for the subdivision of Woodland Acres

- Positive System Pressure – (Critical Control Point – Woodland Acres SOP-23-003)
- Secondary Disinfection – (Critical Control Point – Woodland Acres SOP-23-003 & Primary Chlorine/ Secondary Chlorine Disinfection Failure SOP-13-002)

If a hazardous event is not considered a CCP, the method to control the hazardous event must be documented on the Risk Analysis Matrix.

Related Documents

SOP-02-002 Critical Control Point – Coagulant and Coagulant Aid

SOP-12-002 Critical Control Point – Filtered Water Turbidity

SOP-13-002 Critical Control Point – Primary Chlorine and Secondary Chlorine Disinfection

SOP-23-003 Critical Control Point – Woodland Acres

Element 9.0 Organizational Structure, Roles, Responsibilities and Authorities

Purpose

This Element outlines the organizational structure of the drinking water systems. It is also defines the roles, responsibilities and authorities used to ensure the drinking water system is adequate.

Scope

This Element is applicable to the outlined roles and responsibilities within the Operational Plan governed by the DWQMS. It covers the entire water treatment and distribution process as well as the interrelation with Quality Assurance.

Responsibilities and Authorities

Township Council exercises decision-making authority that may impact the drinking water systems via Council Resolution.

The Water & Wastewater Supervisor is responsible to ensure that the roles and responsibilities outlined in this procedure are reviewed annually to ensure accuracy. This is usually completed as part of the Internal Audit Procedure in Element 19.0 but may be updated as result of organizational or staff changes.

Related Documents

Township of Selwyn Organizational Chart – Appendix 3

SOP-18-002 Operator-In-Charge and Overall Responsible Operator Designation Lakefield

9.1 Organizational Chart for Township of Selwyn

See Appendix 3 for the most current version of the Township's organizational chart for the Water Department.

9.2 Responsibilities and Authorities – Owner & Operating Authority

9.2.1 The Corporation of the Township of Selwyn

The Corporation of the Township of Selwyn has ownership, command and control, and is the operating authority of the Lakefield Drinking Water System and the Woodland Acres Subdivision Distribution System municipal drinking water systems, including the treatment plant, storage and pumping facilities, trunk and

distribution water mains and individual water services up to the private property line. Water meters within the buildings, used as consumption measurement devices for billing purposes, are also owned by the Township.

The Township shall establish service levels and expectations by means of:

- Ensuring that all water provided by the system to the point where the system is connected to a user's plumbing system meets the requirements of the prescribed drinking water quality standards
- Operating the drinking water systems, at all times in which they are in service in accordance with the requirements of the Safe Drinking Water Act
- Maintaining the systems in a fit state of repair
- Satisfying the requirements of the standards prescribed for the class of system to which they belong
- Approving an annual budget
- Endorsing the Operational Plan
- Approving annual water rates
- Approving 5- and 10-year capital budget predictions
- Establishing by-laws and policies

9.3 Responsibilities and Authorities – Top Management

Top Management is described by the DWQMS as a person, persons, or group of people at the highest level within an operating authority that makes decisions respecting the QMS and makes recommendations to the Owner respecting the drinking water system.

It is the responsibility of Top Management to demonstrate a commitment to the implementation of the DWQMS by:

- Ensuring that the QMS is in place and meets the DWQMS
- Communication according to section 12.0
- Undertake the Management Review as per section 20.0
- Determine, obtain, or provide the resources needed to maintain and continually improve the QMS
- Encourage participation in industry associations and committees (AWWA, OMWA, OWWA, among others)
- To provide annual budget for training, attendance at conferences, workshops, and seminars

Top Management consists of the following persons in the Township:

- Chief Administrative Officer
- Manager of Financial Services
- Manager of Public Works

9.4 Responsibilities and Authorities – Operational Management and Staff

See Chart 1 in Appendix 1.

Element 10.0 Competencies

Purpose

This Element describes the competencies of personnel whose job activities directly affect drinking water quality.

Scope

This procedure applies to the personnel identified by this procedure as personnel whose job can directly affect drinking water quality in the Lakefield Drinking Water System and the Woodland Acres Subdivision Distribution System.

Related Documents

SOP-09-002 Satisfying Competencies

O. Reg 128

Procedure

The following personnel may perform duties that directly affect the drinking water quality for the Lakefield Drinking Water System:

- Manager of Public Works
- Water and Wastewater Supervisor
- Water and Wastewater Operations Lead
- Water and Wastewater Operators

This procedure is outlined further in SOP-09-002.

Element 11.0 Personnel Coverage

Purpose

This Element describes how the Township ensures there is sufficient personnel to meet the outlined competencies in Element 10 and to perform duties that directly affect the drinking water system.

Scope

This Element applies to water treatment and distribution systems for the Lakefield Drinking Water System and the Woodland Acres Subdivision Distribution System.

Related Documents

SOP-18-002 Designation of Overall Responsible Operator and Operator in Charge

SOP-10-002 Water Department Personnel Coverage

P:\Departments\Public Works\Water and Sewer\Operations - Water and Wastewater\On Call schedules

General

The Township employs licensed operators, all of whom are required to have and maintain licenses (water treatment and/or distribution) according to the Certification of Drinking Water System Operators and Water Quality Analysts (*O. Reg.* 128/04).

Call outs for additional staff to cover emergency situations is scheduled by the Water and Wastewater Supervisor.

Element 12.0 Communication

Purpose

This Element identifies the method for communicating the Quality Management System to all stakeholders.

Scope

This Element applies to the communication of relevant aspects of the Operational Plan between Top Management and the Owner, operational personnel, essential suppliers and the public.

Related Documents

SOP-03-002 – Drinking Water Quality Management System (DWQMS) Communication

Element 13.0 Essential Supplies and Services

Purpose

This Element identifies essential suppliers and services that may affect quality of drinking water and to ensure availability of those supplies and services.

Scope

This Element applies to the following essential supplies and services for the Lakefield Drinking Water System:

- Sodium hypochlorite
- Acidified aluminum sulphate
- Polymer (coagulant aid)
- Laboratory services
- Auto-dialer system
- SCADA services

This Element applies to the following essential supplies and services for the Woodland Acres Subdivision:

- Water supply
- SCADA services

Related Documents

SOP-14-003 - Essential Supplies and Services

SOP-22-003 - Chemical Deliveries – Lakefield WTP

Element 14.0 Review and Provision of Infrastructure

Purpose

This Element outlines how the Township reviews the infrastructure of the drinking water systems. This review shall determine if the infrastructure is adequate to operate and maintain the drinking water systems.

Scope

Applies to infrastructure relating to the provision of drinking water.

Related Documents

SOP-15-003 – Infrastructure Provision and Maintenance

Element 15.0 Infrastructure Maintenance, Rehabilitation, and Renewal

Purpose

This Element describes the capital planning approach to maintain/rehabilitate/improve the infrastructure of the drinking water systems in the Township.

Scope

This applies to maintenance, rehabilitation, and renewal programs of drinking water infrastructure for the Lakefield Drinking Water System and the Woodland Acres Subdivision Drinking Water System.

Related Documents

SOP-15-003 – Infrastructure Provision and Maintenance

Long Term Forecast Major Infrastructure, Rehabilitation, Renewal Activities

Procedure

A summary is described in SOP-15-003.

Element 16.0 Sampling, Testing, and Monitoring

Purpose

This Element describes the sampling, monitoring and testing activities in the Water systems to ensure compliance with applicable drinking water legislation and for the provision of safe drinking water.

Scope

This Element is applicable to the water treatment plant and water distribution operations.

Related Documents

SOP-16-002 Sampling, Monitoring, and Calibration

SOP-17-002 Microbiological Sampling Procedure

SOP 26-002 Response to Adverse Water Quality Results

Water Sample Schedules for Year - P:\Departments\Public Works\Water and Sewer\Operations - Water and Wastewater\Operations Documents\Records, Documents and Forms

Element 17.0 Measurement and Recording Equipment Calibration Maintenance

Purpose

This Element describes the process used to calibrate and maintain measuring and recording devices used within the Drinking Water Systems.

Scope

This Element applies to the measuring and recording devices used by the Drinking Water System for monitoring of raw, in-process and potable drinking water from: intake, treatment, storage, pumping and distribution.

Related Documents

SOP-16-002 Sampling, Monitoring, and Calibration

List of Instruments to be Calibrated Annually - P:\Departments\Public Works\Water and Sewer\Water\DWQMS\Instrumentation Records, Calibration, Annual service

Element 18.0 Emergency Management

Purpose

This Element describes the process to maintain a state of emergency preparedness for the Drinking Water System.

Scope

This Element considers a wide range of potential emergency situations or service interruptions for the Drinking Water Systems of Lakefield and Woodland Acres.

Related Documents

SOP-08-002 Emergency Preparedness and Response

Township of Selwyn – Municipal Emergency Plan

Element 19.0 Internal Audit

Purpose

This Element describes how the Township of Selwyn verifies conformance to the Operational Plan and to the Drinking Water Quality Management System. Internal auditing promotes proactive and continual improvement of the Township's Quality Management System.

Scope

Applies to operation of the Lakefield Drinking Water System and the Woodland Acres Subdivision Distribution System.

Related Documents

Continual Improvement – section 21 of Township Operational Plan

SOP-04-002 – Internal Audit

Element 20.0 Management Review

Purpose

This Element evaluates continuing suitability, adequacy and effectiveness of the Drinking Water Quality Management System.

Scope

Includes management activities, water treatment plant operations and water distribution operations identified in this Operational Plan.

Responsibilities and Authorities

The DWQMS Representative is responsible to the CAO of the Township of Selwyn for ensuring that detailed and comprehensive reviews are undertaken in accordance with this procedure.

The DWQMS Representative is responsible to the Manager of Public Works for ensuring that the necessary documentation and records are maintained and made available for review by Management.

The Manager of Public Works is responsible for communicating the results of the Management Review to the Owner.

Related Documents

Continual Improvement – Element 21 of Township Operational Plan

SOP–01–003 – Management Review

Element 21.0 Continual Improvement

Purpose

Element 21 describes how the Township of Selwyn continually improves the effectiveness of the DWQMS through consideration of Best Management Practices, corrective actions to address non-conformities and preventative actions to prevent potential nonconformities. Continual Improvement may be initiated through Internal and External Audits, Operator input, AWQI's Customer complaints, MECP Inspections, risk assessment reviews and Operator training, to name a few

Scope

Applies to the correction of actual or potential non-conformities in the drinking water QMS, or other systematic problems that have the potential to impact drinking water quality.

Related Documents

SOP-07-003 – Continual Improvement

Continual Improvement Tracking Spreadsheet

DWQMS – Corrective Action Reports

Definitions/Acronyms

ARV	Air Release Valve
AWWA	American Water Works Association
AWWARF	American Water Works Association Research Foundation
°C	Degrees Celsius
CAO	Chief Administrative Officer
CAR	Corrective Action Request
CCP	Critical Control Point
DWQMS	Drinking Water Quality Management Standard
GAC	Granular Activated Carbon
L/m	Litres per minute
m^3	Cubic meter
m^3/d	Cubic meters per day
mg/L	Milligram per litre
ML/d	Megalitres per day
MECP	Ministry of Environment and Parks
NTU	Nephelometric Turbidity Unit
OP	Operational Plan
O & M	Operation and Maintenance Manual
OIC	Operator-in-Charge
OMWA	Ontario Municipal Water Association
ORO	Overall Responsibility Operator
OWWA	Ontario Water Works Association
PRV	Pressure Reducing Valve
PSI	Pounds per Square Inch
QMS	Quality Management System
µg/L	Micrograms per litre
SCADA	Supervisor Control and Data Acquisition
SOP	Standard Operating Procedure
TCU	True Colour Unit
US gpm	US gallon per minute
WTP	Water Treatment Plant

Appendix 1 – Responsibilities and Authorities

Staff who have a direct impact on the water quality delivered to customer(s)

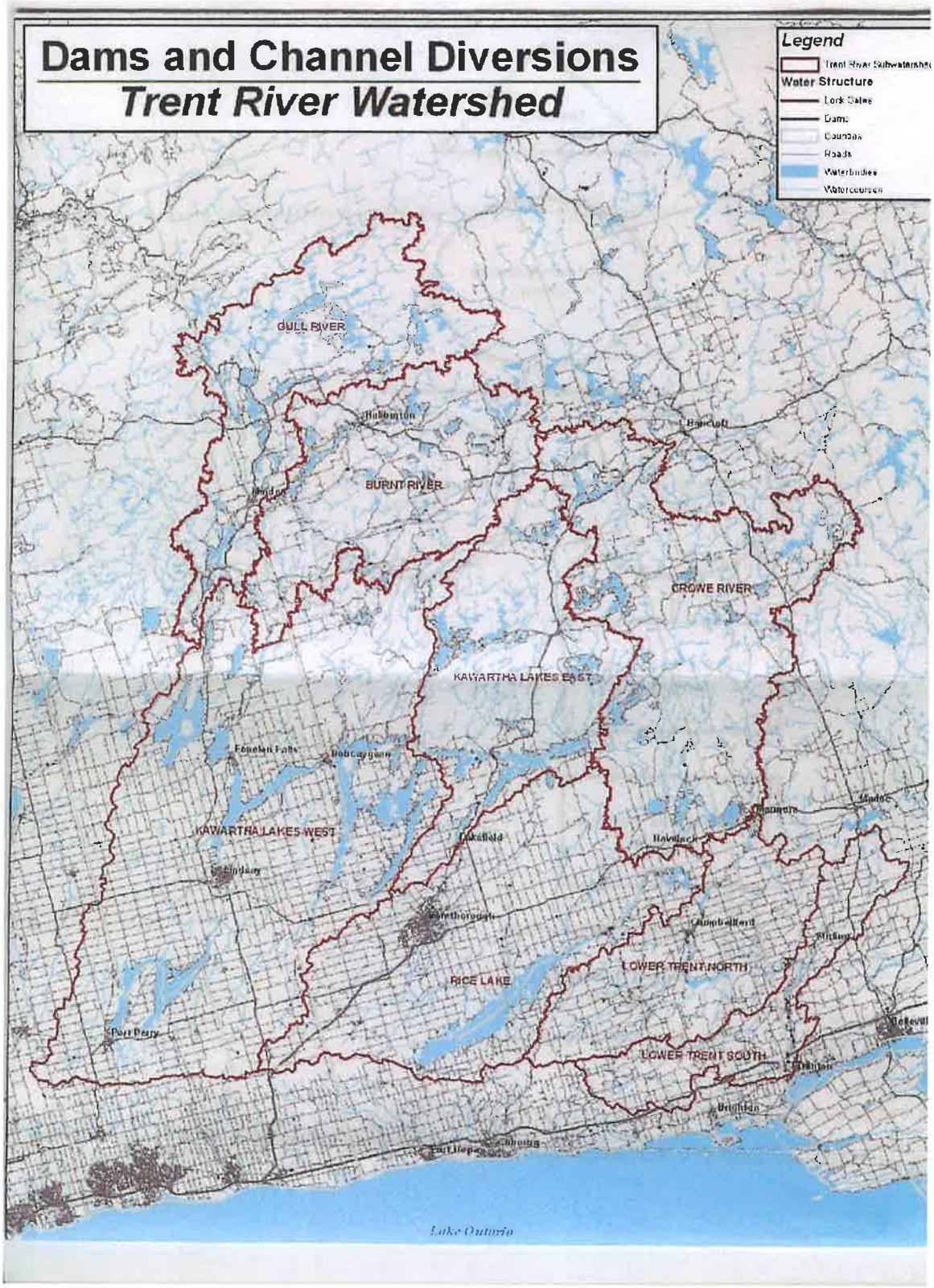
Position	Responsibilities	Authorities
Manager of Public Works	• Assist with regulatory compliance for treated water and operations • Supervision of operating staff and supervisors • Schedule work, allocate projects and resources, monitor progress • Develop procedures to optimize water quality and reliability • Assist in selecting staff and their training and development • Work safety program • ORO as required • Alternate QMS representative • Undertake Management Review • Member of Top Management as defined by DWQMS	• Day-to-day operations of the water treatment plant • Direct supervisors and staff • Overseeing adverse water quality incidences • Develop departmental practices • Arrange for training of supervisors and staff • Schedule construction activities as they affect the WTP and water distribution operations
Water & Wastewater Supervisor	• QMS Representative • Ensure regulatory compliance particularly as it applies to water quality • Monitor water quality and demand • Supervise operations staff • Participate in Management Review • Assist in training and development of staff • Report issues to the Manager of Public Works as necessary • ORO as required • Purchasing chemical supplies for WTP	• Direct staff in day-to-day operations and maintenance activities • Recommend to the Manager of Public Works ways to improve water quality and operational effectiveness
Operations Lead – Water and Wastewater	• Perform specified duties as instructed within established parameters for operating the WTP • Supervise staff work, safety, and progress • Report issues to the Supervisor or Manager as necessary • ORO as required	• Direct staff in day-to-day operations and maintenance activities • Recommend to the Supervisor ways to improve operational effectiveness

Water & Wastewater Operator	• Perform specified duties as instructed within established parameters for operating the WTP • OIC as assigned • ORO as assigned • Daily operational water quality testing • Communication of water quality testing results to appropriate management and staff • Customer concern response	• Operational discretion as delegated by the Operations Lead – Water and Wastewater

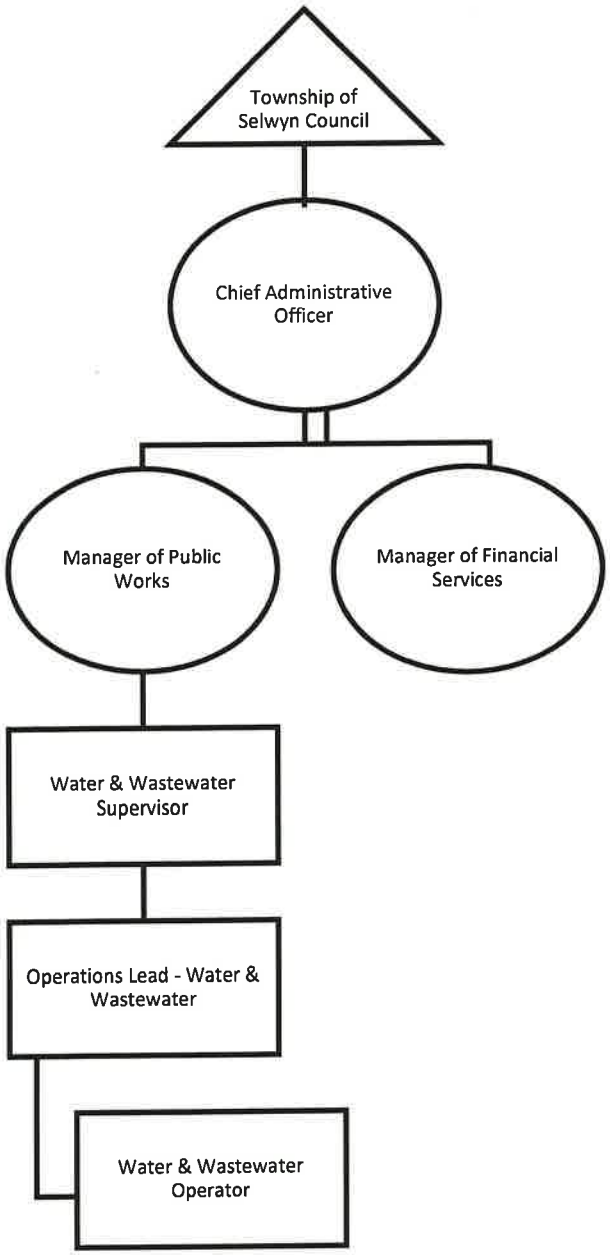
Staff who have an indirect impact on the water quality delivered to customer(s)

Position	Responsibilities	Authorities
Manager of Financial Services	• Review capital budget and annual operating budgets • Undertake Management Review • Support recommendations to Council regarding the drinking water systems • Member of Top Management as defined by DWQMS	• Establish purchasing criteria in consultation with operating departments
Chief Administrative Officer	• Provides support for review of Operational Plan and the QMS • Participate in Management Review • Make recommendations to Council regarding the drinking water systems, based on staff input and reports • Member of Top Management as defined by DWQMS	• Authority to recommend to the Mayor, to make an emergency declaration

Appendix 2 - Watershed



Appendix 3 – Organizational Chart



Owner is indicated with triangle shape in organizational chart.

Top Management members are indicated with circular shapes in organizational chart.

Appendix 4 – MECP Potential Hazardous Events for Municipal Residential Drinking Water Systems – April 2022

Ontario

Ministry of the Environent, Conservation and Parks

Potential Hazardous Events for Municipal Residential Drinking Water Systems
to Consider in the DWQMS Risk Assessment

April 2022

1.0 Background

A risk assessment must be conducted for all municipal residential drinking water systems, as part of the operational plans for those systems. These operational plans form the basis upon which third party auditors assess conformance to the Drinking Water Quality Management Standard.

This approach includes identification of potential risks and risk mitigation strategies for items such as system security, water treatment, and the impacts of climate change. This document lists the potential hazardous events and associated hazards that are, at a minimum, required to be assessed as part of these risk assessments.

2.0 Definitions

All Systems - all municipal residential drinking water systems, including distribution-only systems.

Treatment Systems - all municipal residential drinking water systems that include equipment used to provide primary and/or secondary disinfection of the drinking water, including those with groundwater and/or surface water sources unless otherwise noted.

3.0 Potential Hazardous Events

System Type	Description of Hazardous Event / Hazard
All systems	Long Term Impacts of Climate Change
All systems	Water supply shortfall
All systems	Extreme weather events (e.g., tornado, ice storm)
All systems	Sustained extreme temperatures (e.g., heat wave, deep freeze)
All systems	Chemical spill impacting source water
All systems	Terrorist and vandalism actions
All systems	Cybersecurity threats
Distribution Systems	Sustained pressure loss
Distribution Systems	Backflow
Treatment Systems	Sudden changes to raw water characteristics (e.g., turbidity, pH)
Treatment Systems	Failure of equipment or process associated with primary disinfection (e.g., coagulant dosing system, filters, UV system, chlorination system)
Treatment Systems and Distribution Systems providing secondary disinfection	Failure of equipment or process associated with secondary disinfection (e.g., chlorination equipment, chloramination equipment)
Treatment Systems using Surface Water	Algal blooms