

The Regional Municipality of Niagara

Wastewater Quality Management System Operational Plan

For the:

Anger Avenue Wastewater System
Baker Road Wastewater System
Crystal Beach Wastewater System
Niagara Falls Wastewater System
Niagara-on-the-Lake Wastewater System
Port Dalhousie Wastewater System
Port Weller Wastewater System
Queenston Wastewater System
Seaway Wastewater System
Welland Wastewater System
Stevensville/Douglastown Lagoon Wastewater System
Garner Road Biosolids Handling and Dewatering Facility

Effective Date: <DRAFT>

Revision Number: 2



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1.0 Introduction

1.1 *Drinking Water Quality Management Standard*

The Drinking Water Quality Management Standard (DWQMS) focuses on a proactive and preventive approach for the management of drinking water quality using the four-step “PLAN–DO–CHECK–IMPROVE” process. Under the DWQMS, all municipal residential drinking water systems are required to develop and implement a quality management system (QMS) that must be documented in an operational plan. DWQMS requirements were used as a foundation for the development of Niagara Region’s Wastewater Quality Management System.

Unlike Niagara Region’s Water QMS, the Wastewater QMS is not a legislated requirement; rather, it has been developed and implemented as a best practice. The establishment of a Wastewater QMS demonstrates Niagara Region’s due diligence and proactive approach to quality management in wastewater services.

1.2 *Niagara Region*

The Regional Municipality of Niagara (“Niagara Region”) owns and operates twelve wastewater systems, including:

- **Nine** wastewater treatment plants (WWTPs), **a wastewater treatment lagoon, and a combined lagoon/WWTP system. These systems** collect and treat wastewater from eleven area municipalities: the Cities of St. Catharines, Niagara Falls, Welland, and Port Colborne; the Towns of Grimsby, Lincoln, Thorold, Pelham, Fort Erie, and Niagara-on-the-Lake; and the Township of West Lincoln. Each of these area municipalities owns and operates collection systems that collect wastewater from customers within the region.
- A biosolids handling and dewatering facility (“Garner Road”); dewatering processes at this facility are operated by Niagara Region staff, while biosolids handling is executed by a third-party contractor.

Niagara Region is committed to source water protection by effectively collecting and treating wastewater, and has implemented a QMS in support of its wastewater systems.

1.3 Scope

This Operational Plan documents the QMS for Niagara Region's twelve wastewater systems:

- Anger Avenue Wastewater System
- Baker Road Wastewater System
- Crystal Beach Wastewater System
- Niagara Falls Wastewater System
- Port Dalhousie Wastewater System
- Port Weller Wastewater System
- Queenston Wastewater System
- Seaway Wastewater System
- Welland Wastewater System
- Niagara-on-the-Lake Wastewater System (Lagoon and WWTP)
- Stevensville/Douglastown Lagoon Wastewater System
- Garner Road Biosolids Handling and Dewatering Facility Wastewater System

For the purpose of this Operational Plan and associated procedures:

- All Staff includes all staff employed by Niagara Region
- All Operating Authority Staff includes all staff within the Water and Wastewater Services Division except those who only work in water systems (i.e. Water Operators, Managers, and assigned Maintenance staff)
- Staff who directly affect wastewater treatment quality include:
 - Wastewater Operations Managers and Supervisor(s)
 - Wastewater Operators and Operators-in-Training
- Staff who affect wastewater treatment quality include:
 - Associate Director, Wastewater Operations, Maintenance, and Laboratory Services

- Wastewater Operations Clerks
- System Maintenance Managers & Supervisors (Wastewater)
- System Maintenance Staff (Wastewater)
- Manager of Wastewater Quality & Compliance
- Wastewater Quality & Compliance Staff (including Laboratory and Environmental Enforcement Staff)
- Biosolids Manager
- Biosolids – Residual Solids Operators
- Supervisor, W&WW Development Program
- Water-Wastewater Safety Advisor
- Water-Wastewater Training Advisor
- Water-Wastewater Quality Management Specialist
- Associate Director, Engineering
- Senior Project Managers & Project Managers
- Manager, Infrastructure Planning and Asset Management
- Engineering Support Staff
- Associate Director, Integrated Systems
- Manager of Technical Trades (SCADA)
- Technical Trades Staff
- Managers of Skilled Trades (Electrical and Instrumentation)
- Skilled Trades Staff
- Maintenance Support Services Manger
- Maintenance Support Staff
- Asset Information Supervisor
- Asset Information Staff
- Asset Performance Management Supervisor
- Asset Performance Management Staff

2.0 Quality Management System Policy

Niagara Region is committed to the effective treatment of wastewater within the region. Our Wastewater QMS Policy is shown below.

Figure 1: Wastewater Quality Management System Policy¹



¹ March 31, 2015 – Revision 1

3.0 Commitment and Endorsement

3.1 Top Management

Each member of Top Management pledges commitment to the Wastewater QMS and endorses the Operational Plan through the signing of a Commitment and Endorsement Memorandum. The Memorandum includes a pledge to ensure the implementation, maintenance and continual improvement of the QMS for each of Niagara Region's wastewater systems as documented in this Operational Plan.

3.2 Owner

As System Owner, Niagara Region ensures the implementation, maintenance and continual improvement of the QMS for each of its wastewater systems, as documented in this Operational Plan.

By signing below, Regional Council (represented by the Regional Chair and Clerk) endorse the contents of this Operational Plan.

The Regional Municipality of Niagara

Per:

Regional Chair
Jim Bradley

Date

Regional Clerk
Ann-Marie Norio

Date

3.4 Continued Endorsement

When changes in Top Management occur, the QMS Representative ensures that a Commitment and Endorsement Memorandum is signed by any new members of Top Management. Top Management receives QMS updates as per [Management Review \(QMS-WW-ALL-P-200\)](#).

The System Owner receives updates as per [Communications \(QMS-WW-ALL-P-120\)](#). Continued endorsement of the Operational Plan is demonstrated through the enactment of a confirmatory by-law preceding each Council meeting. The QMS Representative ensures that Council endorsement is received for the most current Operational Plan following changes in Council due to election.

4.0 QMS Representative

Top Management has appointed the Water & Wastewater Quality Management Specialist as the QMS Representative for Niagara Region's wastewater systems.

The QMS Representative's responsibilities include, but are not limited to:

- Administering the QMS by ensuring that processes and procedures needed are established and maintained;
- Reporting to Top Management on the performance of the QMS and any need for improvement;
- In cooperation with all Operating Authority staff, ensuring current versions of documents required by the QMS are being used at all times;
- In cooperation with all Operating Authority staff, ensuring that personnel are aware of all applicable legislative and regulatory requirements pertaining to their duties; and
- Promoting awareness of the QMS throughout the Operating Authority.

5.0 Document and Records Control

Document and records control is an essential part of the QMS. [Document and Records Control \(QMS-WW-ALL-P-050\)](#) outlines how documents required by the QMS are kept current, legible, readily identifiable, retrievable, stored, protected, retained and disposed of. The procedure also documents how records required by the QMS are kept legible, readily identifiable, retrievable, stored, protected, retained, and disposed of.

[Document and Records Control \(QMS-WW-ALL-P-050\)](#) is available via the Regional intranet.

6.0 Wastewater Systems

6.1 *Description of Overall Wastewater Systems*

Niagara Region owns and operates twelve wastewater systems, including wastewater treatment plants (WWTPs), collection systems, lagoons, associated pump stations, and a biosolids handling and dewatering facility. Niagara Region collects wastewater from eleven area municipalities.

Table 1 lists the facilities associated with each of Niagara's wastewater systems, as well as the local municipal collection systems that contribute to the subject system's influent.

Wastewater system descriptions are available via the Regional intranet (see links in Table 1).

Table 1: Niagara Region's Wastewater Systems

Wastewater System	Wastewater System Facilities	Municipal Collection Systems
Anger Avenue (FE) – Anger Avenue Wastewater System Description (QMS-WW-FE-P-060)	Alliston St. Sewage Pumping Station (SPS) Bardol Ave. SPS Catharine St. SPS Dominion Rd. SPS Lakeshore Rd. SPS Rose Ave. SPS Rosehill WTP Backwash PS Thompson Rd. SPS	Fort Erie
Baker Road (BR) – Baker Road Wastewater System Description (QMS-WW-BR-P-060)	Bal Harbour SPS Biggar Lagoon SPS Bridgeport SPS Campden SPS Jordan Valley SPS Lake St. SPS Lakewood Garden SPS Laurie Ave. SPS Old Orchard SPS Ontario St. SPS Roberts Rd. SPS Smithville SPS Streamside SPS Victoria Ave. SPS Woodsvie SPS	Grimsby Lincoln West Lincoln
Crystal Beach (CB) – Crystal Beach Wastewater System Description (QMS-WW-CB-P-060)	Erie Rd. SPS Nigh Rd. SPS Shirley Rd. SPS	Fort Erie (Crystal Beach and Ridgeway)

Wastewater System	Wastewater System Facilities	Municipal Collection Systems
Garner Road (GR) – Garner Road Biosolids Handling and Dewatering Facility System Description (QMS-WW-GR-P-060)	None	Digested sludge from all WWTPs Water residuals from Decew WTP and Grimsby WTP
Niagara Falls (NF) – Niagara Falls Wastewater System Description (QMS-WW-NF-P-060)	Bender Hill SPS Calaguire Estates SPS Central SPS/HRT Creek Rd. SPS Dorchester Rd. SPS Drummond Rd. SPS Garner Rd. Biosolids Storage Facility/PS Garner Rd. SW SPS Grassy Brook SPS Kalar Rd. SPS Lundy's Lane SPS Meadowvale SPS Mewburn Rd. SPS (<i>City-owned</i>) Muddy Run SPS Neighbourhood of St. David's SPS Oakwood Dr. SPS Rolling Acres SPS Royal Manor SPS Seneca St. SPS South Side High Lift SPS South Side Low Lift SPS Stanley/McLeod Storm Water PS Townline SPS	Niagara Falls Niagara-on-the-Lake (<i>St. Davids</i>)

Wastewater System	Wastewater System Facilities	Municipal Collection Systems
Niagara-on-the-Lake (NL) – Niagara-on-the-Lake Wastewater System Description (QMS-WW-NL-P-060)	Front Street SPS Garrison Village SPS Lakeshore Road SPS Line 2 (Hunter Farm) SPS Niagara Stone Road SPS Ricardo Street SPS William Street Sewage Detention Facility William Street SPS	Niagara-on-the-Lake
Port Dalhousie (PD) – Port Dalhousie Wastewater System Description (QMS-WW-PD-P-060)	Argyle SPS Beaverdams SPS Cole Farm SPS Confederation Heights SPS Eastchester SPS Glendale SPS Lakeside SPS Lighthouse Rd. SPS October Village SPS Renown SPS Riverview SPS St. George's SPS Snug Harbour SPS Wellandvale SPS	St. Catharines Thorold
Port Weller (PW) – Port Weller Wastewater System Description (QMS-WW-PW-P-060)	Airport Rd. SPS Black Horse SPS Carleton St. SPS Centre St. SPS Haulage Rd SPS Lombardy Ave. SPS Peel St. SPS Spring Garden SPS Thorold Tunnel SPS	St. Catharines Thorold

Wastewater System	Wastewater System Facilities	Municipal Collection Systems
Queenston (QT) – Queenston Wastewater System Description (QMS-WW-QT-P-060)	none	Niagara-on-the-Lake (Queenston)
Stevensville-Douglastown Lagoon (SD) – Stevensville-Douglastown Lagoon Wastewater System Description (QMS-WW-SD-P-060)	Black Creek Flow Meter Douglastown SPS Stevensville SPS	Fort Erie (Stevensville-Douglastown)
Seaway (SW) – Seaway Wastewater System Description (QMS-WW-SW-P-060)	Arena St. SPS City Hall SPS Clark St. SPS Eastside SPS Elm St. S. SPS Fares St. SPS Fretz SPS Industrial Park SPS Main St. SPS Marina 1 SPS Marina 2 SPS Marina 3 SPS Nickel St. SPS Omer Ave. SPS Oxford Rd. SPS Rosemount N. SPS Rosemount S. SPS Steele Rd. SPS Sugarloaf SPS Union St. SPS	Port Colborne

Wastewater System	Wastewater System Facilities	Municipal Collection Systems
Welland (WE) – Welland Wastewater System Description (QMS-WW-WE-P-060)	Daimler Wood SPS Dain City SPS Feeder Rd. SPS Foss Rd. SPS Fitch St. SPS (city-owned) George St. SPS Hurricane Rd. SPS Kelly St. SPS Lyons Creek CSO OAW Sanitary Sewer Ontario Rd. SPS Park Lane SPS Rice Rd Partial Flume Seaway Heights SPS South Pelham Partial Flume South St. SPS South Thorold (Towpath) SPS Timmsdale SPS	Welland Pelham Thorold South

6.2 Process Schematics and System Schematics

Process schematics for each of Niagara Region’s wastewater treatment systems are available via the Regional intranet as follows:

- Anger Avenue WWTP Process Schematic ([QMS-WW-FE-V-060](#))
- Baker Road WWTP Process Schematic ([QMS-WW-BR-V-060](#))
- Crystal Beach WWTP Process Schematic ([QMS-WW-CB-V-060](#))
- Garner Road Biosolids Facility Process Schematic ([QMS-WW-GR-V-060](#))
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6.4 General Characteristics of Influent

Influent to Niagara Region's wastewater systems is comprised of industrial and residential wastewater. General characteristics of each of Niagara Region's wastewater systems are documented within individual Wastewater System Descriptions (see Table 1, page 8).

6.5 Common Event-Driven Fluctuations, Operational Challenges & Threats

Event-driven fluctuations and resulting operational challenges and threats impacting Niagara Region's wastewater systems are documented within individual Wastewater System Descriptions (see Table 1, page 8).

6.6 Critical Upstream & Downstream Processes

Local area municipalities own and operate collection systems upstream of each of Niagara Region's wastewater systems (as listed in Table 1).

Niagara Region actively participates in source protection initiatives to protect source water for municipal drinking water systems.

7.0 Risk Assessment

A risk assessment procedure has been developed and implemented that:

- Identifies potential hazardous events and associated hazards,
- Assesses the risks associated with the occurrence of hazardous events,
- Ranks the hazardous events according to their level of risk,
- Identifies mitigating measures,
- Identifies a method to verify currency of information,
- Ensures a risk assessment is conducted at least once every three years, and
- Considers the reliability and redundancy of equipment.

[Wastewater System Risk Assessment \(QMS-WW-ALL-P-070\)](#) is available via the Regional intranet.

8.0 Risk Assessment Outcomes

Risk assessment outcomes include identification of hazardous events, associated risk scoring, mitigating measures, and response procedures.

9.0 Organizational Structure, Roles, Responsibilities and Authorities

Water and Wastewater Services is a division of Niagara Region's Public Works Department and serves as the Operating Authority for the Region's wastewater systems and their associated facilities (refer to Section 1.3).

- Our Mission Statement: Through dedicated teamwork and commitment, provide high-quality, safe, and reliable water and wastewater services while practicing good stewardship of resources to benefit present and future generations.
- Our Role: To deliver clean, safe drinking water to the municipal water distribution network and to provide effective wastewater treatment for the community.

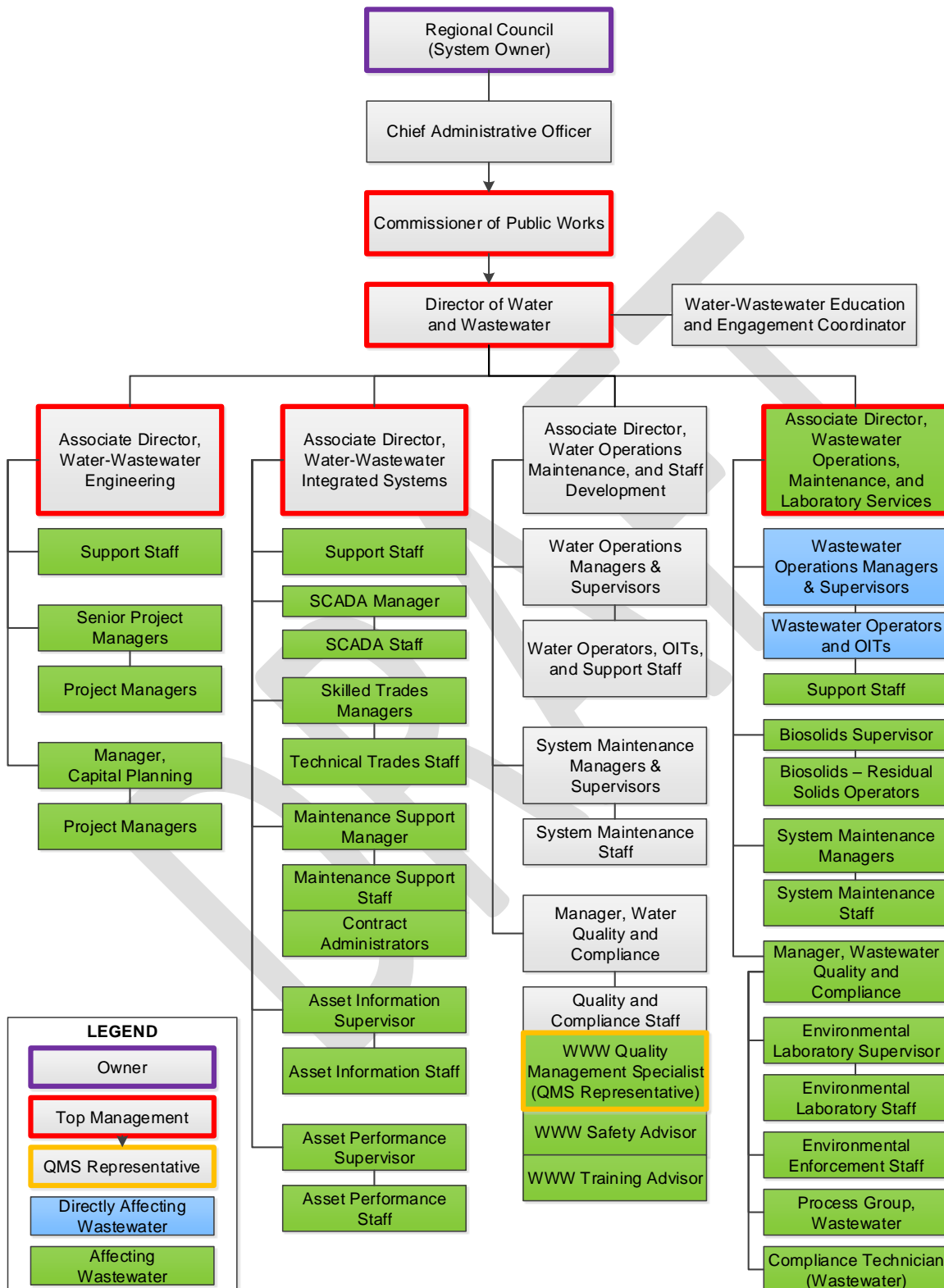
9.1 What We Do

The Water and Wastewater Services Division is made up of a dedicated team of approximately 240 employees working throughout the Niagara Region on the water and wastewater systems. The Division is divided into four working groups:

- Water Operations, Maintenance, and Staff Development;
- Wastewater Operations, Maintenance, and Laboratory Services;
- Water-Wastewater Engineering; and
- Water-Wastewater Integrated Systems.

The organizational structure of the Water and Wastewater Services Division is illustrated in Figure 2 (page 16).

Figure 2: Water and Wastewater Services Division – Organizational Structure



Each of the four working groups within the division has varying levels of responsibility for wastewater effluent quality. Core responsibilities of staff in each group, as well as specific duties for those positions that impact wastewater effluent quality, are identified in Table 2. Table 2 also identifies responsibilities of the System Owner, Top Management and the QMS Representative. (NOTE: Positions that are greyed have been deemed to not directly impact wastewater effluent quality.)

Table 2: QMS Responsibilities and Authorities

Position/Group	Responsibilities	Authorities
Regional Council (System Owner)	<ul style="list-style-type: none"> Act as final decision-making body for Niagara Region Ensure the provision of adequate resources for the operation and maintenance of Niagara Region's collection and wastewater treatment facilities Endorse Niagara Region's WWQMS 	<ul style="list-style-type: none"> Perform listed responsibilities Delegate
Chief Administrative Officer	<ul style="list-style-type: none"> Representative for the Owner, interact with Top Management 	<ul style="list-style-type: none"> Perform listed responsibilities Delegate
Commissioner of Public Works (Top Management)	<ul style="list-style-type: none"> Establish and implement operating policy and procedures, covering execution of department functions Manage Public Works Department in its statutory, operational, custodial and advisory responsibilities Act as a member of the Corporate Management Team Participate in Management Review 	<ul style="list-style-type: none"> Perform listed responsibilities Discipline staff Make engineering decisions Make administrative decisions related to Public Works Delegate
Director of Water and Wastewater (Top Management)	<ul style="list-style-type: none"> Responsible for administration and general management of Water and Wastewater Services Division Ensure wastewater treatment meets federal, provincial and municipal requirements 	<ul style="list-style-type: none"> Perform listed responsibilities Establish Divisional priorities,

Position/Group	Responsibilities	Authorities
	<ul style="list-style-type: none"> – Provide guidance and direction to staff to ensure compliance with provincial standards, and environmental compliance approvals and the promotion of industry best practices for the operation of the wastewater systems – Participate in Management Review – Manage the human and financial resources to ensure efficient and effective operations 	<ul style="list-style-type: none"> control budgets and costs, and work quality – Take appropriate action to ensure health and safety during emergency situations – Delegate
Wastewater Operations and Maintenance		
Associate Director of Wastewater (Affecting Wastewater) (Top Management)	<ul style="list-style-type: none"> – Maintain accountability for execution and direction of all aspects of wastewater system operation and maintenance – Manage Region's wastewater treatment operations to ensure compliance with regulatory requirements and due diligence in daily activities – Demonstrate due diligence in daily activities and keep abreast of relevant legislation and regulations – Ensure adequate health and safety program in place for Wastewater Services – Analyze and develop annual current and capital budgets to ensure that operations are cost effective – Continually review overall function of facilities, personnel, communications, and training to achieve high standard of performance – Direct activities related to public relations, evaluating investigations and preparing reports – Ensure staff/personnel issues are dealt with effectively and in a timely manner – Coordinate employee efforts and respond to emergencies and complaints – Provide leadership for emergency preparedness – Participate in Management Review 	<ul style="list-style-type: none"> – Perform listed responsibilities – Approve purchases in accordance with approved budget and policies and procedures – Discipline and deal with major personnel matters – Suggest modifications to systems and make changes during construction – Recommend purchase of equipment or services involving major expenditures – Delegate

Position/Group	Responsibilities	Authorities
	<ul style="list-style-type: none"> May function as “Overall Responsible Operator (ORO)” as required by Ontario Regulation 129/04 	
Wastewater Operations Manager & Supervisor <i>(Directly Affecting Wastewater)</i>	<ul style="list-style-type: none"> Supervise operation of wastewater treatment plants and regional collection system Control budget for area and procure material and services as needed to ensure efficient operation Ensure due diligence in daily activities and compliance with regulatory requirements Ensure staff follow safe work practices as outlined in health and safety procedures; provide PPE and training as needed Participate in Public relations, evaluate investigations and preparing reports Respond to emergencies and complaints Function as “Overall Responsible Operator (ORO)” as required by O. Reg. 129/04 	<ul style="list-style-type: none"> Perform listed responsibilities Approve purchases in accordance with approved budget and policies and procedures Discipline and deal with minor personnel matters <i>(Managers only)</i> Make suggestions for continual improvement Issue notice of non-compliance Delegate
System Operator and Operator-in-Training (OIT) <i>(Directly Affecting Wastewater)</i>	<ul style="list-style-type: none"> Perform operational functions Maintain written and computer based daily records Perform routine inspections of plant Prepare work orders for repairs to equipment Collect and test wastewater samples to monitor/maintain relevant parameters Serve as “Operator-In-Charge (OIC)”: <ul style="list-style-type: none"> Operators-in-Training must perform some responsibilities at the direction of the System Operator, as required by O. Reg. 129/04 When an OIT is operating, the ORO shall be designated as OIC 	<ul style="list-style-type: none"> Perform listed responsibilities Make suggestions for continual improvement

Position/Group	Responsibilities	Authorities
Biosolids Supervisor (Affecting Wastewater)	<ul style="list-style-type: none"> – Supervise operation of biosolids treatment facility and lagoons – Control budget for area and procure material and services as needed to ensure efficient operation – Ensure due diligence in daily activities and compliance with regulatory requirements – Ensure staff follow safe work practices as outlined in health and safety procedures; provide PPE and training as needed – Participate in public relations, evaluate investigations and preparing reports – Respond to emergencies and complaints 	<ul style="list-style-type: none"> – Perform listed responsibilities – Approve purchases in accordance with approved budget and policies and procedures – Discipline and deal with minor personnel matters – Make suggestions for continual improvement – Delegate
Biosolids – Residual Solids Operator (Affecting Wastewater)	<ul style="list-style-type: none"> – Perform operational functions – Maintain written and computer based daily records – Prepare work orders for repairs to equipment – Collect and test process samples to monitor/maintain relevant parameters 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement
Support Staff (Affecting Wastewater)	<ul style="list-style-type: none"> – Maintain appropriate control of documents & records – Assist with communications, public relations, investigations and report preparation as needed – Clerical functions – Assist with customer service activities including responding to complaints 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement
Wastewater Systems Maintenance Managers (Affecting Wastewater)	<ul style="list-style-type: none"> – Direct and supervise Maintenance staff within area during regular, emergency, standby and on-call hours 	<ul style="list-style-type: none"> – Perform listed responsibilities – Delegate – Discipline and deal with minor

Position/Group	Responsibilities	Authorities
	<ul style="list-style-type: none"> – Demonstrate due diligence in daily activities and ensure compliance with relevant regulations and Regional policies – Control budget for area; monitor expenditures and procurement of materials and services – Prepare and modify maintenance schedules to provide for normal maintenance relief, staff training, vacation, lieu time, and sick time – Participate in activities related to public relations, evaluating investigations and preparing reports – Ensure staff follow safe work practices as outlined in health and safety procedures; provide PPE and training as needed – Respond to emergencies and complaints – Scoping, design and construction of projects 	<ul style="list-style-type: none"> personnel matters – Make suggestions for continual improvement
Systems Maintenance Staff (Affecting Wastewater)	<ul style="list-style-type: none"> – Respond to general system maintenance issues – Complete preventive maintenance tasks 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement
Manager of Quality and Compliance, Wastewater (Affecting Wastewater)	<ul style="list-style-type: none"> – Ensure processes are optimized and maintained – Develop and implement quality sampling program as required in a collection system – Ensure staff follow safe work practices as outlined in health and safety procedures; provide PPE and training as needed – Administer environmental enforcement program – Act as Lead Auditor for the ISO 17025 laboratory management system 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement – Discipline and deal with minor personnel matters – Issue notices of non-compliance – Delegate

Position/Group	Responsibilities	Authorities
Environmental Laboratory Supervisor (Affecting Wastewater)	<ul style="list-style-type: none"> – Supervise Environmental Laboratory staff – Control budget for area and procure material and services as needed to ensure efficient operation – Ensure due diligence in daily activities and compliance with regulatory requirements – Ensure staff follow safe work practices as outlined in health and safety procedures; provide PPE and training as needed 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement – Discipline and deal with minor personnel matters – Delegate
Environmental Laboratory Staff (Affecting Wastewater)	<ul style="list-style-type: none"> – Conduct analytical wastewater and biosolids testing – Follow established protocols for sampling and testing – Provide notification of any exceedances 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement
Environmental Enforcement Staff (Affecting Wastewater)	<ul style="list-style-type: none"> – Determine sampling locations and methods, and collect water or wastewater samples for analysis – Inspect wastewater treatment and disposal facilities and systems for compliance to federal, provincial, and/or local regulations (including Environmental Compliance Approvals) – Examine permits, licences, applications, and records to ensure compliance with licencing requirements – Prepare, organize & maintain inspection records – Monitor follow-up actions in instances where violations were found, and review compliance monitoring reports – Act as relief Operators as required 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement – Recommend notices of non-compliance
Process Engineer, Wastewater (Affecting Wastewater)	<ul style="list-style-type: none"> – Complete process optimization activities 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement

Position/Group	Responsibilities	Authorities
Compliance Technologist, Wastewater (Affecting Wastewater)	<ul style="list-style-type: none"> – Maintain appropriate control of documents and records – Assist with developing and implementing quality sampling programs as required in collection systems – Assist with audits, investigations and preparing reports as needed by Operations – Complete federal external compliance reporting – Apply for approvals and amendments to Environmental Compliance Approvals and to the Environmental Activity and Sector Registry – Complete benchmarking activities 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement
Integrated Systems		
Associate Director, Water-Wastewater Integrated Systems (Top Management)	<ul style="list-style-type: none"> – Ensure support and maintenance of CMMS, SCADA systems and other related technologies – Analyze and develop annual current and capital budgets to ensure continuity of operations and service – Direct activities related to public relations, evaluating investigations, and preparing reports – Demonstrate due diligence in daily activities and keep abreast of relevant legislation and regulations – Ensure staff/personnel issues are dealt with effectively and in a timely manner – Coordinate employee efforts and respond to emergencies and complaints – Ensure staff follow safe work practices as outlined in Health and Safety procedures; provide PPE and training as needed – Participate in Management Review 	<ul style="list-style-type: none"> – Perform listed responsibilities – Approve purchases in accordance with approved budget and policies and procedures – Discipline and deal with major personnel matters – Suggest modifications to systems and make changes during construction – Recommend purchase of equipment or services involving major expenditures – Delegate

Position/Group	Responsibilities	Authorities
SCADA Manager (Affecting Wastewater)	<ul style="list-style-type: none"> – Manage and administer SCADA resources to achieve divisional goals and objectives – Control budget for area and procure material and services to provide internal and external customers with efficient and cost-effective skilled support – Demonstrate due diligence in daily activities and ensure compliance with relevant regulations and regional policies – Participate in activities related to public relations, evaluating investigations and preparing reports – Respond to emergencies and complaints – Ensure staff follow safe work practices as outlined in health and safety procedures; provide PPE and training as needed – Scoping, design and construction of projects 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement – Delegate
Manager, Technical Trades (Affecting Wastewater)	<ul style="list-style-type: none"> – Manage and administer skilled trades resources to achieve divisional goals and objectives – Control budget for area and procure material and services to provide internal and external customers with efficient and cost-effective skilled support – Demonstrate due diligence in daily activities and ensure compliance with relevant regulations and regional policies – Participate in activities related to public relations, evaluating investigations and preparing reports – Respond to emergencies and complaints – Ensure staff follow safe work practices as outlined in health and safety procedures; provide PPE and training as needed – Scoping, design and construction of projects 	<ul style="list-style-type: none"> – Perform listed responsibilities – Supervise daily activities of Technical Trades staff – Delegate – Make suggestions for continual improvement
Skilled Trades Manager (Affecting Wastewater)	<ul style="list-style-type: none"> – Manage and administer skilled trades resources to achieve Divisional goals and objectives – Control budget for area and procure material and services to provide internal and external customers with efficient and cost-effective skilled support 	<ul style="list-style-type: none"> – Perform listed responsibilities – Supervise daily activities of Electricians, Millwrights,

Position/Group	Responsibilities	Authorities
	<ul style="list-style-type: none"> – Demonstrate due diligence in daily activities and ensure compliance with relevant Regulations and Regional Policies – Ensure staff follow safe work practices as outlined in health and safety procedures; provide PPE and training as needed – Participate in activities related to Public relations, evaluating investigations and preparing reports – Respond to emergencies and complaints – Assist with scoping, design, and construction of projects 	<p>and/or Instrumentation Technicians</p> <ul style="list-style-type: none"> – Delegate – Discipline and deal with minor personnel matters – Make suggestions for continual improvement
Technical Trades Staff (Affecting Wastewater)	<ul style="list-style-type: none"> – Respond to maintenance issues (i.e. electrical problems, SCADA issues, etc.) 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement
Water-Wastewater Maintenance Support Services Manager (Affecting Wastewater)	<ul style="list-style-type: none"> – Manage and administer support resources to achieve divisional goals and objectives – Control budget for area and procure material and services to provide internal and external customer with efficient/cost-effective support – Demonstrate due diligence in daily activities and ensure compliance with relevant regulations and regional policies – Ensure staff follow safe work practices as outlined in health and safety procedures; provide PPE and training as needed – Maintain CMMS program 	<ul style="list-style-type: none"> – Perform listed responsibilities – Discipline and deal with minor personnel matters – Make suggestions for continual improvement
Maintenance Support Staff (CMMS, Clerks) (Affecting Wastewater)	<ul style="list-style-type: none"> – Maintain control of documents and records – Assist with communications, public relations, investigations and preparing reports as needed by Maintenance staff – Complete clerical functions – Assist with customer service activities, including responding to complaints 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement

Position/Group	Responsibilities	Authorities
Contract Administrators (Affecting Wastewater)	<ul style="list-style-type: none"> Review, amend and administer annual contracts for Water-Wastewater Services Prepare authorizations and approvals for contract and bid awards Monitor and supervise maintenance projects 	<ul style="list-style-type: none"> Perform listed responsibilities Make suggestions for continual improvement
Asset Information Supervisor (Affecting Wastewater)	<ul style="list-style-type: none"> Manage and administer Water & Wastewater GIS (Geographic Information Systems) and IMS (Information Management Systems) to achieve Divisional goals and objectives Direct and supervise Asset Information staff Communicate project progress with Management Control budget for area and procure material and services as needed to ensure efficient operation Ensure due diligence in daily activities and compliance with regulatory requirements Ensure staff follow safe work practices as outlined in Health and Safety procedures; provide PPE and training as needed Participate in public relations, evaluate investigations and preparing reports Respond to emergencies and complaints 	<ul style="list-style-type: none"> Perform listed responsibilities Discipline and deal with minor personnel matters Make suggestions for continual improvement
Asset Information Staff (Affecting Wastewater)	<ul style="list-style-type: none"> Coordinate the locating of sub-surface Water & Wastewater assets Review engineering drawings and resolve discrepancies Tracking and updating asset lifecycle data Assist with the administration of the Water & Wastewater GIS and IMS 	<ul style="list-style-type: none"> Perform listed responsibilities Make suggestions for continual improvement
Asset Performance Management Supervisor (Affecting Wastewater)	<ul style="list-style-type: none"> Direct and supervise Asset Performance staff Manage and administer asset performance resources to achieve Divisional goals and objectives Participate in infrastructure planning and review activities 	<ul style="list-style-type: none"> Perform listed responsibilities Discipline and deal with minor personnel matters

Position/Group	Responsibilities	Authorities
	<ul style="list-style-type: none"> – Communicate project progress with Management – Control budget for area and procure material and services as needed to ensure efficient operation – Ensure due diligence in daily activities and compliance with regulatory requirements – Ensure staff follow safe work practices as outlined in Health and Safety procedures; provide PPE and training as needed – Participate in public relations, evaluate investigations and preparing reports – Respond to emergencies and complaints 	<ul style="list-style-type: none"> – Make suggestions for continual improvement
Asset Performance Staff (Affecting Wastewater)	<ul style="list-style-type: none"> – Collect flow measurements, dimensional analysis and visual resources for wastewater systems – Conduct field inspections of assets – Perform emergency locates – Collect spatial coordinates for inclusion into the Water & Wastewater GIS systems – Monitor, maintain and update environmental systems and conduct evaluations for flow and weather – Assist with design and maintenance for new and existing water and wastewater systems 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement
Engineering		
Associate Director, Engineering (Top Management)	<ul style="list-style-type: none"> – Hold accountability for scoping, design and construction of engineering projects connected with Region's water and wastewater systems – Analyze and develop annual current and capital budgets to ensure that operation plans are cost effective – Manage & administer capital project resources to achieve Divisional goals and objectives – Demonstrate due diligence in daily activities and keep abreast of relevant legislation and regulations 	<ul style="list-style-type: none"> – Perform listed responsibilities – Suggest modifications to systems and make changes during construction – Delegate – Discipline and deal with major

Position/Group	Responsibilities	Authorities
	<ul style="list-style-type: none"> – Demonstrate due diligence in daily activities and keep abreast of relevant legislation and regulations – Communicate project progress with other working groups within and outside of Water-Wastewater Services – Direct and supervise Project Management staff – Participate in infrastructure planning and review activities – Participate in Management Review – Participate in public relations, evaluate investigations and preparing reports – Ensure staff follow safe work practices as outlined in Health and Safety procedures; provide PPE and training as needed – Respond to emergencies and complaints 	<p>personnel matters</p> <ul style="list-style-type: none"> – Make suggestions for continual improvement
Senior Project Manager, Design and Construction (Affecting Wastewater)	<ul style="list-style-type: none"> – Lead the scoping, design and construction of large scale projects related to Region's systems – Infrastructure planning and review – Communicate project progress with Management – Control budget for projects and procure material and services as needed to ensure efficient operation – Ensure due diligence in daily activities and compliance with regulatory requirements including assisting with the preparation of applications for approvals and amendments with the Ministry of Environment and Climate Change – Participate in infrastructure planning and review activities – Participate in public relations, evaluate investigations and preparing reports – Respond to emergencies and complaints – Assist Project Managers with issues as required 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement

Position/Group	Responsibilities	Authorities
Project Manager, Design and Construction (Affecting Wastewater)	<ul style="list-style-type: none"> – Lead the scoping, design and construction of projects related to Region's systems – Infrastructure planning and review – Communicate project progress with Management – Control budget for area and procure material and services as needed to ensure efficient operation – Ensure due diligence in daily activities and compliance with regulatory requirements including assisting with the preparation of applications for approvals and amendments with the Ministry of Environment – Participate in infrastructure planning and review activities – Participate in public relations, evaluate investigations and preparing reports – Respond to emergencies and complaints 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement
Manager, Capital Planning (Affecting Wastewater)	<ul style="list-style-type: none"> – Manage and administer infrastructure planning and review to achieve Divisional goals and objectives – Direct and supervise Capital Planning staff – Communicate project progress with Management – Control budget for area and procure material and services as needed to ensure efficient operation – Ensure due diligence in daily activities and compliance with regulatory requirements – Ensure staff follow safe work practices as outlined in Health and Safety procedures; provide PPE and training as needed – Participate in public relations, evaluate investigations and preparing reports – Respond to emergencies and complaints 	<ul style="list-style-type: none"> – Perform listed responsibilities – Discipline and deal with minor personnel matters – Make suggestions for continual improvement
Project Managers, Capital Planning	<ul style="list-style-type: none"> – Lead the scoping, design and construction of projects related to Region's systems – Infrastructure planning and review 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for

Position/Group	Responsibilities	Authorities
(Affecting Wastewater)	<ul style="list-style-type: none"> – Communicate project progress with Management – Control budget for area and procure material and services as needed to ensure efficient operation – Ensure due diligence in daily activities and compliance with regulatory requirements including assisting with the preparation of applications for approvals and amendments with the Ministry of Environment – Ensure staff follow safe work practices as outlined in Health and Safety procedures; provide PPE and training as needed – Participate in public relations, evaluate investigations and preparing reports – Respond to emergencies and complaints 	continual improvement
Engineering Support Staff (Affecting Wastewater)	<ul style="list-style-type: none"> – Document & Record Control – Assist with communications, Public relations, investigations and preparing reports as needed by Operations – Clerical functions – Assist with Customer Service activities including responding to complaints 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement
Water Operations and Maintenance		
Associate Director, Water Operations, Maintenance, and Staff Development (Top Management)	<ul style="list-style-type: none"> – Maintain accountability for execution and direction of all aspects of drinking water system operation and maintenance – Manage Region's water treatment operations and maintenance to ensure compliance with regulatory requirements and ensure due diligence in daily activities – Demonstrate due diligence in daily activities and keep abreast of relevant legislation and regulations – Ensure adequate health and safety program in place for Water and Wastewater 	<ul style="list-style-type: none"> – Perform listed responsibilities – Approve purchases in accordance with approved budget and policies and procedures – Discipline and deal with major personnel matters

Position/Group	Responsibilities	Authorities
	<ul style="list-style-type: none"> Analyze and develop annual current and capital budgets to ensure that operations are cost effective Continually review overall function of facilities, personnel, communications and training to achieve high standard of performance Direct activities related to public relations, evaluating investigations and preparing reports Ensure staff/personnel issues are dealt with effectively and in a timely manner Coordinate employee efforts and respond to emergencies and complaints Provide leadership for emergency preparedness Participate in Management Review May function as "Overall Responsible Operator (ORO)" as required by O. Reg. 128/04 	<ul style="list-style-type: none"> Suggest modifications to systems and make changes during construction Recommend purchase of equipment or services involving major expenditures Delegate Make suggestions for continual improvement
Water Operations Managers/ Supervisors	<ul style="list-style-type: none"> Supervise operation of water treatment plants and regional transmission system Control area budget; procure material/services as needed to ensure efficient operation Ensure due diligence in daily activities and compliance with regulatory requirements Participate in Public relations, evaluate investigations and preparing reports Ensure staff follow safe work practices as outlined in Health and Safety procedures; provide PPE and training as needed Respond to emergencies and complaints Function as "Overall Responsible Operator (ORO)" as required by O. Reg. 128/04 	<ul style="list-style-type: none"> Perform listed responsibilities Delegate Discipline and deal with minor personnel matters (<i>Managers only</i>) Make suggestions for continual improvement
System Operator and Operator-in-Training (OIT)	<ul style="list-style-type: none"> Perform operational functions Maintain written and computer based daily records Perform routine inspections of plant Prepare work orders for repairs to equipment Collect and test water samples to monitor/maintain relevant parameters 	<ul style="list-style-type: none"> Perform listed responsibilities Make suggestions for continual improvement

Position/Group	Responsibilities	Authorities
	<ul style="list-style-type: none"> – Serve as “Operator-In-Charge (OIC)”: <ul style="list-style-type: none"> ○ Operators-in-Training must perform some responsibilities at the direction of System Operator, as required by O. Reg. 128/04 ○ When an OIT is operating, the ORO shall be designated as OIC 	
Support Staff	<ul style="list-style-type: none"> – Maintain appropriate control of documents and records – Assist with communications, public relations, investigations and preparing reports as needed by Operations – Clerical functions – Assist with customer service activities, including responding to complaints 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement
Water Systems Maintenance Managers	<ul style="list-style-type: none"> – Direct and supervise Maintenance staff within area during regular, emergency, standby and on-call hours – Demonstrate due diligence in daily activities and ensure compliance with relevant Regulations and Regional Policies – Control budget for area; monitor expenditures and procurement of materials and services – Prepare and modify maintenance schedules to provide for normal maintenance relief, staff training, vacation, lieu time, and sick time – Participate in activities related to public relations, evaluating investigations and preparing reports – Ensure staff follow safe work practices as outlined in Health and Safety procedures; provide PPE and training as needed – Respond to emergencies and complaints – Assist in scoping, design and construction of projects 	<ul style="list-style-type: none"> – Perform listed responsibilities – Delegate – Discipline and deal with minor personnel matters – Make suggestions for continual improvement
Systems Maintenance Staff	<ul style="list-style-type: none"> – Respond to maintenance issues (i.e. general systems maintenance, etc.) – May serve as “Operator-In-Charge (OIC)” in the transmission system 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for

Position/Group	Responsibilities	Authorities
		continual improvement
Manager, Water Quality and Compliance	<ul style="list-style-type: none"> – Ensure processes are optimized and maintained – Develop and implement quality sampling program as required in a collection/transmission/distribution system – Act as Lead Auditor – Ensure training program is maintained in order to meet competencies – Ensure staff follow safe work practices as outlined in health and safety procedures; provide PPE and training as needed 	<ul style="list-style-type: none"> – Perform listed responsibilities – Delegate – Make suggestions for continual improvement
Quality & Compliance Staff (Affects Wastewater – selected roles)	<ul style="list-style-type: none"> – Training Program – Health & Safety Program – Technical Support – Process Optimization – Communications and Public Outreach – Compliance Support 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement
W-WW Quality Management Specialist (QMS Rep) (Affecting Wastewater)	<ul style="list-style-type: none"> – See QMS Representative Responsibilities in Operational Plan (Section 4) 	<ul style="list-style-type: none"> – Perform listed responsibilities – Delegate – Make suggestions for continual improvement
W-WW Training Advisor (Affecting Wastewater)	<ul style="list-style-type: none"> – Identify essential and supplementary training needs – Develop and coordinate annual training plan – Maintain training records 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for continual improvement
W-WW Safety Advisor (Affecting Wastewater)	<ul style="list-style-type: none"> – Review operating procedures and emergency preparedness plan and upgrades – Provide safety information and programs to W-WW Division staff – Investigate health and safety incidents 	<ul style="list-style-type: none"> – Perform listed responsibilities – Make suggestions for

Position/Group	Responsibilities	Authorities
		continual improvement
Supervisor, W-WW Development Program (Affecting Wastewater)	<ul style="list-style-type: none"> – Perform assigned supervisory functions – Interact with engineering, maintenance, operations, and biosolids groups – Ensure due diligence in daily activities and compliance with regulatory requirements – Ensure staff follow safe work practices as outlined in health and safety procedures; provide PPE and training as needed – Participate in Public relations, evaluate investigations and preparing reports – Respond to emergencies and complaints – Function “Overall Responsible Operator (ORO)” as required by Ontario Regulation 129/04 	<ul style="list-style-type: none"> – Perform listed responsibilities – Discipline and deal with minor personnel matters – Make suggestions for continual improvement – Delegate

10.0 Competencies

Niagara Region personnel performing duties affecting wastewater effluent must understand the importance of their actions. Furthermore, they must be competent in their jobs and have appropriate education, training, skills and/or experience.

The [Competencies Table \(QMS-ALL-ALL-T-100\)](#) documents competencies required for personnel performing duties affecting wastewater effluent quality.

[Competencies \(QMS-WW-ALL-P-100\)](#) documents activities to develop and maintain the required competencies for personnel performing duties affecting wastewater effluent quality. It also documents activities to ensure that all Operating Authority personnel are aware of the relevance of their duties.

[Competencies \(QMS-WW-ALL-P-100\)](#) and the [Competencies Table \(QMS-ALL-ALL-T-100\)](#) are available via the Regional intranet.

11.0 Personnel Coverage

Niagara Region ensures that sufficient personnel meeting identified competencies are available for duties that affect wastewater effluent quality as documented in [Personnel Coverage \(QMS-WW-ALL-P-110\)](#).

[Personnel Coverage \(QMS-WW-ALL-P-110\)](#) is available via the Regional intranet.

12.0 Communications

Effective communication is essential for ensuring the success of a QMS. [Communications \(QMS-WW-ALL-P-120\)](#) describes how relevant aspects of the QMS are communicated between Top Management and the Owner, Operating Authority personnel, Suppliers and the Public.

[Communications \(QMS-WW-ALL-P-120\)](#) is available via the Regional intranet.

13.0 Essential Supplies and Services

Niagara Region's wastewater systems require a number of essential supplies and services for the effective treatment of wastewater. These supplies and services are categorized as:

- Chemical supplies;
- Laboratory services;
- Calibration services;
- Miscellaneous supplies and services.

Essential supplies and services are identified on the ["Essential Supplies and Services" Vine page](#). Methods to ensure procurement and quality of essential supplies and services are outlined in [Essential Supplies and Services \(QMS-WW-ALL-P-130\)](#).

[Essential Supplies and Services \(QMS-WW-ALL-P-130\)](#) and the ["Essential Supplies and Services" Vine page](#) are both available via the Regional intranet.

14.0 Review, Rehabilitation and Renewal of Infrastructure

[Review, Rehabilitation and Renewal of Infrastructure \(QMS-WW-ALL-P-140\)](#) describes how Niagara Region reviews the adequacy of infrastructure necessary to operate and maintain its wastewater systems. It also details how capitably-funded infrastructure rehabilitation and renewal projects are initiated, approved, and communicated to the Owner.

[Review, Rehabilitation and Renewal of Infrastructure \(QMS-WW-ALL-P-140\)](#) is available via the Regional intranet.

15.0 Infrastructure Maintenance

Niagara Region maintains an effective maintenance program for wastewater system infrastructure. The maintenance program includes planned and unplanned maintenance activities as well as infrastructure renewal and rehabilitation activities that are funded from the current budget. [Maintenance \(QMS-WW-ALL-P-150\)](#) describes the maintenance program, the means to monitor its effectiveness, and how it is communicated to the Owner.

[Maintenance \(QMS-WW-ALL-P-150\)](#) is available via the Regional intranet.

16.0 Sampling, Testing and Monitoring

Sampling, testing and monitoring activities are essential to confirm wastewater effluent quality and to maintain compliance with applicable legislation and regulations. [Sampling, Testing and Monitoring \(QMS-WW-ALL-P-160\)](#) describes these activities and how results are recorded and shared. To support the procedure, a table has been prepared² for each WWTP that outlines sampling, testing, and monitoring activities at the WWTP.

[Sampling, Testing and Monitoring \(QMS-WW-ALL-P-160\)](#) and the supporting tables are available via the Regional intranet.

17.0 Measurement & Recording Equipment Calibration & Maintenance

The measurement and recording equipment used in Niagara Region's wastewater systems is calibrated and maintained according to [Measurement and Recording Equipment Calibration and Maintenance \(QMS-WW-ALL-P-170\)](#).

[Measurement and Recording Equipment Calibration and Maintenance \(QMS-WW-ALL-P-170\)](#) is available via the Regional intranet.

18.0 Emergency Management

Niagara Region takes measures to maintain a state of emergency preparedness for its wastewater systems; to this end, the Region has developed an Emergency Response Plan (ERP) for Water-Wastewater Systems.

² NOTE: Tables have been created for selected WWTPs; the remaining tables are in development. Sampling plans are established and in place for all WWTPs.

The ERP includes response and recovery procedures for potential emergencies that could impact the wastewater process, effluent quality, and/or the environment. The procedures are broken down into emergency activation, emergency response/recovery, and emergency demobilization phases, and each phase outlines the responsibilities of those involved in the required activities. Training and testing requirements are specified in [Emergency Response Plan – Front End \(ERP-ALL-ALL-P-001\)](#). An [Emergency Response Contact List \(ERP-ALL-ALL-T-002\)](#) is also included as part of the ERP Manual.

The ERP Manual is available on the Vine's [Water-Wastewater Services Division Page](#) under “W-WW Emergency Response Plan”.

19.0 Internal Audits

Internal audits add value to Niagara Region’s operations by providing feedback about the Wastewater QMS and its effectiveness. [Internal Auditing \(QMS-WW-ALL-P-190\)](#) describes:

- How to evaluate the conformity of Niagara Region’s QMS with the requirements of the Standard;
- Audit criteria, frequency, scope, methodology and record keeping requirements;
- How previous internal and external audit results are considered; and
- How corrective actions are identified and initiated (see Section 21.0 of this Operational Plan).

[Internal Auditing \(QMS-WW-ALL-P-190\)](#) is available via the Regional intranet.

20.0 Management Review

To ensure the continuing suitability, adequacy and effectiveness of the Wastewater QMS, an annual Management Review is performed according to [Management Review \(QMS-WW-ALL-P-200\)](#).

[Management Review \(QMS-WW-ALL-P-200\)](#) is available via the Regional intranet.

21.0 Continual Improvement

Niagara Region maintains and continually improves the QMS through annual internal audits, management reviews, process optimization projects, and staff development activities:

- Non-conformances and opportunities for improvement are identified and reported through the QMS *internal audit process*. Corrective actions are then initiated to resolve and eliminate the non-conformances.
- Deficiencies identified as part of the annual *management review* are discussed, and action plans are created to improve the QMS.
- Many of Niagara Region's *process optimization projects* are initiated from benchmarking results. Benchmarking involves the analysis of performance measures across Niagara's wastewater systems. These results are used to identify best practices and prioritize areas for improvement.
- Niagara Region staff play a critical role in the implementation and improvement of the QMS. We are committed to providing effective *staff development* opportunities (e.g. courses, workshops, on the job training, etc.) in an effort to continually improve our operations.

[Corrective Action \(QMS-WW-ALL-P-210\)](#) documents how corrective actions are used to continually improve the QMS. The procedure is available via the Regional intranet.

22.0 Table of Revisions:

Revision	Date	Description of Revision	Updated By
0	Jun. 30, 2015	Operational Plan created and endorsed. <i>Endorsed by Regional Council.</i>	Jen Croswell
1	Jan. 7, 2016	Revisions to: <ul style="list-style-type: none"> Section 3 (Commitment and Endorsement): Revised how written records of commitment and endorsement are obtained and updated Section 9 (Organizational Structure, Roles, Responsibilities and Authorities): <ul style="list-style-type: none"> Removed Environmental Enforcement from directly affecting wastewater and changed to affecting wastewater Added the Associate Director Engineering to Top Management (Water OFI 2015-002-Internal) Expanded Laboratory Staff to Environmental Laboratory Supervisor and Environmental Laboratory staff Included additional responsibilities in regards to “scoping, design and construction of projects” maintenance manager positions (Water OFI-14-02) Added authority for WW Operations Managers for reporting of non-compliance Minor administrative revisions throughout <i>Endorsed by the Commissioner of Public Works via authority delegated by Council.</i>	Jen Croswell
2	<DATE>	Revisions: <ul style="list-style-type: none"> Updated position titles throughout document to reflect the Divisional reorganization (2016) and the results of the non-union job evaluation process (2016). Updated document IDs throughout document to reflect changes in document numbering system. Updated hyperlinks to supporting documents as required. 	Rachel Whyte

Revision	Date	Description of Revision	Updated By
		<ul style="list-style-type: none"> Section 6 (Wastewater System Descriptions): <ul style="list-style-type: none"> Updated “Table 1: Niagara Region’s Wastewater Systems” to include all Region-owned and/or operated sewage pumping stations, including assumption of ownership of Marina 1, 2, 3 stations from the City of Port Colborne. Section 9 (Organizational Structure, Roles, Responsibilities and Authorities): <ul style="list-style-type: none"> Revised text (“What We Do”) and “Figure 2: Water and Wastewater Services Division – Organizational Structure” to reflect the Divisional reorganization. Added the Associate Director, Integrated Systems to Top Management as per the Divisional reorganization. Reorganized “Table 2: QMS Responsibilities and Authorities” to reflect the new organizational structure following the Divisional reorganization. Reworded Manager and Supervisor responsibilities for health and safety to “ensure staff follow safe work practices as outlined in Health and Safety procedures; provide PPE and training as needed” Minor administrative revisions and reformatting throughout document. <p><i>Endorsed by Regional Council.</i></p>	