
Subject: Drinking Water Compliance and Water Wastewater Quality Management System Endorsement

Report to: Public Works Committee

Report date: Tuesday, March 19, 2019

Recommendations

1. That Report PW 19-2019, detailing information regarding Niagara Region's drinking water compliance and quality management programs, **BE RECEIVED**;
2. That information **BE RECEIVED** for Standard of Care requirements and training opportunities for members of Regional and Area Municipal councils;
3. That the Water Quality Management System Operational Plan and the Wastewater Quality Management System Operational Plan **BE APPROVED** and **ENDORSED**; and
4. That the Regional Chair and Regional Clerk **BE AUTHORIZED** to sign the Operational Plans on behalf of Council as evidence of Council's endorsement.

Key Facts

- The purpose of this report is to provide Council with details of programs that support the Water and Wastewater Services Division's continued compliance with provisions of the Safe Drinking Water Act, 2002 and the Clean Water Act, 2006. Through this report, the Water and Wastewater Services Division also seeks endorsement of the Water Quality Management System (QMS) Operational Plan and the Wastewater Quality Management System Operational Plan.
- Niagara Region owns and operates five (5) drinking water systems and has held Municipal Drinking Water Licences for each of these systems since 2009.
- Continued accreditation to the Drinking Water Quality Management Standard is required as a condition of issuance of the Municipal Drinking Water Licence.
- Under the Water Quality Management System, Council is identified as the "Owners" of the region's drinking water systems; selected staff of the Water and Wastewater Division are identified as members of the "Operating Authority".
- Standard of Care Provisions under the Safe Drinking Water Act, 2002 are applicable to Council and may result in an offense under the Act if provisions are not met.
- Standard of Care training is available to members of Regional and Area Municipality Councils on March 19, 2019 at the Niagara Region Council Chambers; in addition, the Water and Wastewater Services Division provides Council with a variety of

reports at specified intervals so that Council can continually assess Niagara's drinking water systems and ensure that Standard of Care Provisions are met.

Financial Considerations

A total of approximately \$3,825 (excluding HST) in quality management system program costs were incurred in 2018. Costs included consulting fees for an off-site external surveillance audit of the Water QMS. A similar allocation is anticipated for 2019 and is included in the approved 2019 operating budget for Water Operations.

Analysis

The purpose of this report is to provide Council with details of programs that support the Water and Wastewater Services Division's continued compliance with provisions of the *Safe Drinking Water Act, 2002* and the *Clean Water Act, 2006*. Within this report, the Water Quality Management System Operational Plan and Wastewater Quality Management System Operational Plan are also presented for Council endorsement. Endorsement of these plans is a legislative requirement.

Municipal Drinking Water Licencing Program

The Municipal Drinking Water Licencing Program (MDWLP) was developed in response to several recommendations of the Part II Report of the Walkerton Inquiry. The MDWLP requires every Operating Authority of a municipal residential drinking water system to hold a licence to operate the subject system. Without valid licences, Niagara Region is unable to operate its five (5) drinking water systems. A licence includes conditions of operation for the subject system; these may include details of additional sampling and maintenance requirements, relief from regulatory requirements, and administrative procedures related to the MDWLP.

Niagara Region will be renewing municipal drinking water licences in 2019. Under the MDWLP, there are five (5) requirements to obtain a drinking water licence:

- Financial plan;
- Drinking Water Works Permit;
- Permit to Take Water;
- Documented quality management system (QMS) operational plan; and
- Accreditation of the Operating Authority's QMS.

These requirements are discussed in more detail below.

Financial Plan

Ontario Regulation 453/07 prescribes requirements for the development of a Water and Wastewater Financial Plan (Financial Plan). Under this regulation, municipalities must prepare a Financial Plan that demonstrates financial sustainability of their drinking water systems for the duration of the term of the municipal drinking water licence.

The 2019-2028 Financial Plan was prepared based on the proposed 2019 water and wastewater operating budget and the proposed 2019-2028 water and wastewater capital budget and forecast. It was approved by Council in January 2019 under PW 4-2019. With this approval, Niagara Region can finalize and submit the applications for municipal drinking water licence renewal. The next Financial Plan submission to Council is anticipated in 2024.

Drinking Water Works Permit

Niagara Region holds drinking water works permits for each of its five (5) drinking water systems. A permit contains an overview of the major infrastructure that is installed and in use within the subject system. Permits also specify the types of infrastructure additions, modifications, replacements, or extensions that a municipality is pre-authorized to complete, versus those that require approval from the Ministry of Environment, Conservation and Parks (MECP).

Amendments

To make any additions, modifications, replacements or extensions to a drinking water system, changes must be either approved through a Schedule C amendment to the associated drinking water works permit or pre-authorized through a condition in the Drinking Water Works Permit.

In 2017, the signing authority for specific provincial and federal environmental compliance instruments, including Drinking Water Works Permit amendments and Permit to Take Water renewal applications, was delegated to the Water Compliance Specialist and the Water and Wastewater Compliance Technologist under PW 56-2017. Quarterly memoranda summarizing sign-off activity will continue to be provided to Council as part of weekly correspondence.

Source Water Protection

As mandated by the *Clean Water Act, 2006*, the drinking water sources for Niagara's drinking water systems are protected under the Niagara Peninsula Source Protection Plan (the SPP). The SPP is a locally-driven, collaborative, prevention-based plan that is based on science. In the SPP, drinking water sources are assessed, vulnerabilities are determined, and identified drinking water threats are managed via approved policies.

On July 1, 2018, Ontario Regulation 205/18 under the *Safe Drinking Water Act, 2002*, came into effect. This regulation requires municipalities to assess vulnerable areas and threats to source water before placing a new or altered drinking water system intake into service. Niagara Region is anticipating infrastructure work to four (4) of the Region's six (6) drinking water intakes within the next five (5) years. Once available, formal approval of the updated SPP will be requested by Council as required by the *Clean Water Act, 2006*.

Additional source water protection resources can be found in PWC-C 3-2018, on the Niagara Peninsula Source Water Protection website (<http://www.sourceprotection-niagara.ca>), and in Appendix I to this report (Drinking Water Source Protection Primer: For Municipal Councillors).

Water Quality Management System

The MDWLP requires those organizations who operate municipal residential drinking water systems to develop, implement, and maintain a QMS that is accredited to the requirements of Ontario's Drinking Water Quality Management Standard (the Standard). The QMS must be documented in an Operational Plan and accredited through an audit process by a third-party accreditation body that is approved by the MECP. Niagara Region has maintained accreditation to the Standard since 2009.

Niagara Region's Water QMS Operational Plan describes various operational, maintenance, testing, monitoring, administration, and oversight processes that have been implemented in support of the Water QMS. Elements of the Standard that may be of particular interest or importance to Council include risk assessment; roles, responsibilities, and authorities; infrastructure review, maintenance, rehabilitation and renewal; internal auditing; and Top Management Review.

The Water-Wastewater Quality Management Specialist provides Council with an annual Water QMS Update that summarizes the status of the Water QMS, including updates relating to the above-noted elements of interest, key QMS activities, and relevant milestones. The Water-Wastewater Quality Management Specialist also provides Council with an annual Water QMS Audit Update to summarize the results of internal and external Water QMS audits.

Wastewater Quality Management System

The Water-Wastewater Services Division has developed and implemented a quality management system for wastewater operations. While a Wastewater Quality Management System is not presently required by law, the division has implemented the Wastewater QMS as a best management practice. The division has committed to the Wastewater QMS as a tool for internal control and continual improvement. The Water-

Wastewater Quality Management Specialist provides Council with an annual Wastewater QMS Update that summarizes the status of the Wastewater QMS and provides details of key activities and milestones.

QMS Roles and Responsibilities

Several key roles and responsibilities have been defined in the Water and Wastewater QMS Operational Plans. These roles include but are not limited to the following:

System Owner

Council represents Niagara Region as the Drinking Water and Wastewater Systems Owner. Owner responsibilities include:

- Owning and endorsing the respective Operational Plans;
- Ensuring the drinking water system is operated by an accredited operating authority¹;
- Monitoring the QMS and providing resources in support of the QMS; and
- Ensuring compliance with the MDWL and its components².

Operating Authority

Niagara Region (specifically, selected staff of the Water-Wastewater Services Division) acts as the Drinking Water System Operating Authority. The responsibilities of the Operating Authority include:

- Maintaining the QMS;
- Maintaining accreditation of the QMS;
- Communicating with the Owner about the QMS and resource requirements; and
- Ensuring compliance with the MDWL and its components³.

Top Management

Top Management of the Water QMS includes the Commissioner of Public Works; the Director, Water and Wastewater Services; the Associate Director, Water Operations, Maintenance, and Staff Development; the Associate Director, Water-Wastewater Engineering; and the Associate Director, Water-Wastewater Integrated Systems.

Top Management of the Wastewater QMS includes the Commissioner of Public Works; the Director, Water and Wastewater Services; the Associate Director, Wastewater Operations, Maintenance, and Laboratory Services; the Associate Director, Water-

¹ Accreditation is not applicable for wastewater, since the Wastewater QMS is not legislatively required.

² The licensing program applies to water only.

³ Same as previous.

Wastewater Engineering; and the Associate Director, Water-Wastewater Integrated Systems.

Top Management's responsibilities include:

- Ensuring that a QMS is in place that meets the requirements of the Standard;
- Participating in annual QMS Management Reviews;
- Ensuring that the Operating Authority is aware of legislative and regulatory requirements;
- Communicating the QMS according to documented procedures; and
- Providing resources needed to maintain and improve the QMS.

QMS Representative

The Water-Wastewater Quality Management Specialist has been appointed as the QMS Representative by Top Management. The Water Compliance Specialist has been identified as the back-up Water QMS Representative⁴, as per PW 95-2014.

Responsibilities of the QMS Representative include:

- Establish and maintain procedures and documents required by the QMS;
- Report to Top Management and the Owner on the performance of the QMS and areas of required improvement;
- Ensure that current QMS documentation is being used by Operating Authority staff at all times;
- Ensure that Operating Authority staff are aware of all applicable legislative and regulatory requirements that pertain to their duties for the operation of the drinking water and/or wastewater systems; and
- Promote QMS awareness throughout the Operating Authority.

Endorsement of Water and Wastewater Quality Management System Operational Plans

Accompanying this report, Public Works Committee members have received copies of the following documents for approval and endorsement:

- Niagara Region's Water Quality Management System Operational Plan (included as Appendix II);
- Niagara Region's Wastewater Quality Management System Operational Plan (included as Appendix III).

While the previous endorsement of the Operational Plan is still valid as per PWA 109-2008, the Operating Authority is recommending that the 2019-2022 term of Council (as

⁴ A back-up Wastewater QMS Representative has not been formally identified and approved by Council.

Drinking Water and Wastewater System Owners) approve and endorse the Operational Plans as presented for Niagara Region's drinking water and wastewater systems.

In addition to Water and Wastewater QMS Update Reports that are provided to Council on an annual basis, the Water-Wastewater Quality Management Specialist will report to Council to recommend re-endorsement of an Operational Plan if substantial changes are made to its content.

Operational Performance

In addition to MDWLP requirements, summary and annual reporting are required under the *Safe Drinking Water Act, 2002*; one summary and one annual report are to be prepared per drinking water system. Summary reports must be provided to Council on an annual basis. Both summary and annual reports are posted on the external website (<https://www.niagararegion.ca/living/water/Water-Quality-Reports/default.aspx>) for public access.

The annual report provides a description of treatment processes and the quality of drinking water; including adverse water quality incidents and sample results.

The summary report contains:

- A description of regulatory non-compliances with pertinent legal instruments
- Water flow information that can be used to assess the capability of the system to meet both existing and planned uses.

The summary report has been provided to Council as PWC-C 6-2019.

Standard of Care

Standard of Care provisions under the *Safe Drinking Water Act, 2002*, came into force on January 1, 2013. These provisions require the System Owner, Top Management, and every person who, on behalf of the municipality, oversees the accredited Operating Authority or exercises decision-making authority, to “exercise the level of care, diligence and skill that a reasonably prudent person would be expected to exercise in a similar situation” and “act honestly, competently and with integrity, with a view to ensuring the protection and safety of the users of the municipal drinking-water system.” Failure to do so could result in an offense under the *Safe Drinking Water Act, 2002*. A System Owner may rely on a report of an engineer, lawyer, accountant, or other person whose professional qualifications lend credibility to the report.

Additional Standard of Care resources are available on the MECP website (<https://www.ontario.ca/page/taking-care-your-drinking-water-guide-members-municipal-councils>) and during an in-class training opportunity that will be available to members of Regional and Area Municipality Councils on March 19, 2019 from 6:30 p.m. to 9:30 p.m. at the Niagara Region Council Chambers (see Appendix IV).

Ongoing Communication with Council

In support of the *Safe Drinking Water Act, 2002*, the *Clean Water Act, 2006*, and to assist Council with meeting the due diligence requirements of the Standard of Care provisions, regular correspondence can be expected throughout the 2018-2022 Council term in regard to the MDWLP, source water protection, QMS status, and operational performance.

Minimum correspondence frequencies have been summarized below in Table 1.

Table 1: Minimum Correspondence

Topic	Frequency
Financial Plan	Every 5 years
Operational Performance – Summary Report	Annual
Water QMS Update	Annual
Water QMS Audit Update	Annual
Wastewater QMS Update	Annual
Delegated Authority	Quarterly
Source Water Protection Plan Approval	As required
Request for Operational Plan Re-Endorsement	As required

Alternatives Reviewed

No alternatives were reviewed as Niagara Region is mandated to comply with the provisions of the *Safe Drinking Water Act, 2002* and *Clean Water Act, 2006*.

Relationship to Council Strategic Priorities

Niagara Region's Water Quality Management Systems, and associated audit processes, relate directly to Council's strategic priority of "strengthening internal controls, key information sharing processes, and financial planning". The Water Quality Management System is a key internal control for the Water and Wastewater Services Division. It increases accountability by defining clear roles and responsibilities for divisional staff, and it increases transparency through documented standard operating procedures and associated record-keeping practices.

The Water Quality Management System also relates to Council's strategic priority of "enhancing the reputation of Niagara Region among residents, businesses, media and other stakeholders". The continued accreditation of the Region's Water Quality Management System provides residents with confidence that their drinking water is safe and that the associated systems are managed with competence and diligence.

Other Pertinent Reports

- PWA 109-2008, DWQMS Update (October 29, 2008).
- PW 95-2014, Identification of Back-Up QMS Representative
- PW 56-2017, Delegated Signing Authority for Environmental Approvals and Reporting
- PWC-C 3-2018, *Clean Water Act, 2006*, Overview of Responsibilities
- PW 4-2019, Water and Wastewater Financial Plan for O.Reg. 453/07
- PWC-C 6-2019, Niagara Water Treatment Plant 2018 Summary Reports

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Appendices

Appendix 1	Drinking Water Source Protection Primer: For Municipal Councillors
Appendix 2	Water Quality Management System Operational Plan
Appendix 3	Wastewater Quality Management System Operational Plan
Appendix 4	Invitation: Owner Standard of Care Training

This report was reviewed by Mike Janas, C.E.T., Associate Director, Water Operations, Maintenance, and Staff Development, and Joe Tonellato, P. Eng., Director, Water-Wastewater Services.

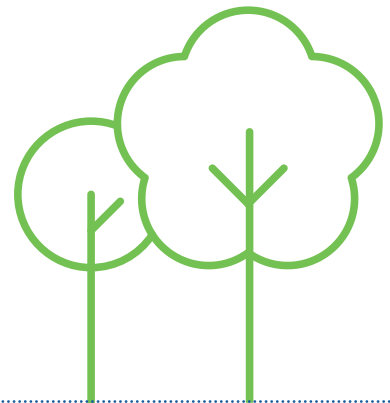


Have you seen this Drinking Water Protection Zone sign?



These signs are appearing across Ontario to raise awareness about the vulnerability of our municipal drinking water sources. Governments at the local and provincial level are placing signs along roadways where a pollution spill could have a negative impact on our drinking water sources.

250 Thorold Road West, Third Floor
Welland, ON L3C 3W2
[905-788-3135](tel:905-788-3135)





Drinking Water Source Protection Primer: For Municipal Councillors

Your community relies on safe, sustainable drinking water. Protecting the water at its source is an important first step in the drinking water safety net.

Ontario has a comprehensive Drinking Water Source Protection Program to ensure sources of municipal drinking water are protected now and into the future. Under this program, local source protection plans developed under the Clean Water Act, 2006, are in place. These plans contain policies that protect municipal drinking water sources (water found in lakes, rivers and groundwater aquifers) from contamination and overuse.

Meet your statutory standard of care responsibilities

Source protection plans require municipalities to implement policies to protect the source water for their drinking water systems. The Safe Drinking Water Act, 2002, includes a statutory standard of care (section 19) for individuals with oversight responsibilities for municipal drinking water systems, including municipal councillors.

This standard ensures that you are practicing due diligence to protect public health when making decisions that could affect drinking water. This includes a consideration of the source water characteristics as well as the risks posed to it.

Learn more at: ontario.ca/page/taking-care-your-drinking-water-guide-members-municipal-councils.



Ensure source protection planning is in place

New regulation 205/18 has been established under the Safe Drinking Water Act, 2002, to ensure that source protection planning is in place for new and changing municipal systems, before treated drinking water is provided to the public. The regulation came into effect on July 1, 2018.



Municipal residential drinking water system owners are now responsible for ensuring that vulnerable areas are delineated and vulnerability scores are identified before they apply for a drinking water works permit. Source protection plans must also be amended and approved prior to the treated water being supplied to the public.

Notify your local conservation authority immediately, when planning changes to your drinking water systems, or planning for a new well/intake or a new system.

Provincial Policy Statement

Municipalities and other planning authorities must follow the Provincial Policy Statement. Section 2.2.1 mandates planning authorities to protect, improve or restore the quality and quantity of water. This includes protecting vulnerable areas associated with drinking water sources. This has been completed in the Niagara Region.

Be informed

- **Your constituents** may come to you with questions about the source of their drinking water supply. Find out how drinking water source protection benefits your region, and the cost of the protection. Know how many municipal wells/surface water intakes there are, where they are located, and who they serve in your municipality. Determine these with help from your municipal staff and local conservation authority.
- **Municipalities** are responsible for implementing more than half of the policies found in source protection plans. Many of these policies are legally binding. Review the source protection plan for your area to find out what policies are to be

implemented within your municipality and what actions are being taken to protect drinking water vulnerable areas.

- Understand how **source protection plan policies** can impact building requirements. Development applications and planning or building permits may be flagged at a municipality for land use planning policies. These applications or permits often need to be reviewed by the local risk management official (RMO) before they can be submitted to the municipality. Proposed activities may require a risk management plan, or in some cases are prohibited.
- When a **risk management plan** is needed, a risk management official works with the landowners/renters to develop a plan that contains measures to protect drinking water sources. A risk management plan is only required when a property is in a vulnerable area and the activity being undertaken poses a significant level risk to drinking water sources.
- **Sewage systems** identified under the Clean Water Act as causing significant level risks to drinking water sources, are subject to mandatory inspections through the Building Code Act, 1992.
- The Drinking Water Source Protection Program does not include **individual private wells**. A private well owner needs to regularly sample their water to test its quality, and properly maintain their well to protect water sources.

For more on source protection planning, visit sourceprotection-niagara.ca.



What's a vulnerable area?

Drinking water source protection is based on science. Local scientific data was used to create maps that show drinking water vulnerable areas. In these areas, we need to pay attention to activities causing contamination.

To find out if a property is located in a drinking water vulnerable area, search the Source Protection Information Atlas at ontario.ca/page/source-protection.

There are four types of vulnerable areas:

1. **Intake protection zones (IPZs)** are areas of land and water around surface water intakes that should be protected from risks to the quality and quantity of the drinking water source.
2. **Highly vulnerable aquifers (HVAs)** are areas that are particularly susceptible to contamination based on factors such as the aquifer depth underground, the soil types, soil permeability and other characteristics of the surrounding soil or rock.
3. **Wellhead protection areas (WHPAs)** are areas around municipal wells where the groundwater is travelling toward that well when the well is being pumped. These areas should be protected from risks to the quality and quantity of the drinking water source.
4. **Significant groundwater recharge areas (SGRAs)** are areas where a relatively high percentage of precipitation seeps into the ground to help maintain the water level in an aquifer that supplies a community or private residence with drinking water.

If a water quality issue is identified by source protection committees under the Clean Water Act, issue contributing areas (ICAs) can be delineated within the vulnerable areas. Examples of issues identified in Ontario include nitrate and sodium. Mandatory policies apply within issue contributing areas for municipal suppliers in order to ensure that the source water quality is protected or improved.

Know the threats to drinking water sources

The Clean Water Act identifies activities that could pose a threat to drinking water sources under certain circumstances. These threat activities may be significant, moderate or low level risks. Identified threats include:

- Application, handling and storage of agricultural source material (such as manure), non-agricultural source material (such as biosolids), commercial fertilizer, and pesticides.
- Handling and storage of fuel, dense non-aqueous phase liquids (DNAPLs*), and organic solvents.
- Land used for livestock grazing or pasturing, outdoor confinement areas, and farm-animal yards.
- Application, handling and storage of road salt, and storage of snow.
- The establishment, operation and maintenance of systems that collect, store, transmit, treat or dispose of sewage (such as septic systems and sewage treatment plants, stormwater management facilities).
- The establishment, operation and maintenance of waste disposal sites (such as landfills).
- Activities that take water from a water body without returning the water to the same water body.
- An activity that reduces the recharge of an aquifer.
- The establishment and operation of a liquid hydrocarbon pipeline (added in April 2018, through an amendment to the Clean Water Act).
- Management of aircraft de-icing chemical runoff.

*DNAPLs, or dense non-aqueous phase liquids, are a particularly hazardous group of substances that are heavier than water and are difficult to remove once they contaminate a water source.

The Regional Municipality of Niagara

**Water
Quality Management System
Operational Plan**
(QMS-WT-ALL-MAN-010)

For the:

Decew Falls/Niagara Falls Drinking-Water System
Grimsby Drinking-Water System
Port Colborne Drinking-Water System
Rosehill Drinking-Water System
Welland Drinking-Water System

Effective Date: <DRAFT>
Revision Number: 9



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Appendix 3	Drinking Water System Process Schematics: <ul style="list-style-type: none">• Decew Falls/Niagara Falls Drinking Water System Process Schematic (QMS-WT-DN-V-060)• Grimsby Drinking Water System Process Schematic (QMS-WT-GR-V-060)• Port Colborne Drinking Water System Process Schematic (QMS-WT-PC-V-060)• Rosehill Drinking Water System Process Schematic (QMS-WT-RH-V-060)• Welland Drinking Water System Process Schematic (QMS-WT-WE-V-060)
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1. Introduction

1.1 *Drinking Water Quality Management Standard*

The Municipal Drinking Water Licensing Program is established under the *Safe Drinking Water Act, 2002* (Ontario Ministry of the Environment and Climate Change). This licensing program requires drinking water system owners to incorporate the concept of quality management into their operations, as mandated by the Drinking Water Quality Management Standard (DWQMS).

The 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.

1.2 *Niagara Region*

The Regional Municipality of Niagara (“Niagara Region”) owns and operates five drinking water systems that treat and transmit safe drinking water to eleven area municipalities: the Cities of St. Catharines, Niagara Falls, Welland, Port Colborne; the Towns of Grimsby, Lincoln, Thorold, Pelham, Fort Erie, Niagara-on-the-Lake; and the Township of West Lincoln. The area municipalities own and operate distribution systems that deliver water to the consumers in Niagara.

Niagara Region is committed to producing safe drinking water and has implemented a QMS in support of its drinking water systems.

1.3 Scope

This Operational Plan documents the QMS for Niagara Region's five drinking water systems:

- Decew Falls / Niagara Falls Drinking Water System
- Grimsby Drinking Water System
- Port Colborne Drinking Water System
- Rosehill Drinking Water System
- Welland Drinking Water 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 wastewater systems (i.e. Wastewater Operators, Managers, and assigned Maintenance staff)
- **Staff who directly affect drinking water quality** include:
 - Associate Director, Water Operations, Maintenance & Staff Development
 - Water Operations Managers & Supervisors
 - Water Operators, Operators-in-Training, and Support Staff
 - System Maintenance Managers & Supervisors (Water)
 - System Maintenance Staff (Water)
 - Manager of Water Quality & Compliance
 - Water Quality and Compliance Staff
 - Manager of Technical Trades
 - Skilled Trades Managers
 - Contract Administrators
 - Senior Project Managers, Design and Construction
 - Project Managers, Design and Construction

2. Quality Management System Policy

Niagara Region is committed to **WATER** and our QMS Policy is shown below.

Figure 1: Water Quality Management System Policy¹



Niagara Region has implemented a
Quality Management System (QMS)
 to demonstrate our dedication to providing consumers
 with high quality drinking water.

The Region is committed to:

Working to ensure the QMS is maintained and continually improved

abiding by all relevant legislation and regulations

treating and producing water that is clean and safe

educating the public about the importance of water

respecting Niagara's most precious resource – water

Niagara  Region

www.niagararegion.ca

¹ March 31, 2015 – Revision 1

3. Commitment and Endorsement

3.1 Top Management

Each member of Top Management pledges commitment to the Water 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 drinking water systems as documented in this Operational Plan.

3.2 Owner

As System Owner, Niagara Region shall ensure the implementation, maintenance and continual improvement of the QMS for each of its drinking water 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

3.3 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 \(QMS-WT-ALL-P-200\)](#).

The System Owner receives QMS updates as per [Communications \(QMS-WT-ALL-P-120\)](#). 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. QMS Representative

Top Management has appointed the Water & Wastewater Quality Management Specialist as the QMS Representative for Niagara Region's drinking water systems. In the event that the Water & Wastewater Quality Management Specialist is unable to fulfil the duties of QMS Representative, the Water Compliance Specialist will assume the role and responsibilities.

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. Document and Records Control

Document and records control is an essential part of the QMS. [Document and Records Control \(QMS-WT-ALL-P-050\)](#) 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 \(QMS-WT-ALL-P-050\)](#) is available on Vine.

6. Drinking Water Systems

6.1 Description of Overall Drinking Water Systems

6.1.1 General

Niagara Region owns and operates five drinking water systems including treatment plants, transmission mains and associated reservoirs, elevated tanks, towers, standpipes, pumping and booster stations. Niagara Region supplies eleven area municipalities with safe and treated drinking water.

Table 1 lists the facilities associated with each of Niagara's drinking water systems, along with the local municipal distribution systems supplied from each system. Rechlorination stations are listed in the appropriate Drinking Water Works Permit.

Drinking water system descriptions are available on Vine (see links in Table 1).

Table 1: Niagara Region's Drinking Water Systems

Water System	Niagara Region Drinking Water System Facilities	Municipal System(s) Supplied
Decew Falls/Niagara Falls (DN) – Decew Falls/Niagara Falls Drinking Water System Description (QMS-WT-DN-P-060)	Brock High Lift Booster Pumping Station Carlton Street Reservoir & Pumping Station Decew Falls Water Treatment Plant Fifth Ave. Reservoir and Rechlorination Station Glendale Pumping Station Line 2 (Virgil) Rechlorination Station Lundy's Lane Elevated Tank Montrose Road Rechlorination Station Niagara Falls Water Treatment Plant Niagara-on-the-Lake Sampling Station Port Robinson Rechlorination Station St. Catharines (Zone 2) Standpipe St. David's Standpipe St. David's Rechlorination Station Stanley Ave. Rechlorination Station Thorold South (Zone 3) Elevated Tank Vineland Booster & Pumping Station Virgil Elevated Tank	Lincoln Niagara Falls N-O-T-L St. Catharines Thorold
Grimsby (GR) – Grimsby Drinking Water System Description (QMS-WT-GR-P-060)	Grimsby Water Treatment Plant Hixon Street Reservoir Lincoln / Grimsby Booster Pumping Station Park Rd Reservoir & Booster Pump Stn Smithville Reservoir, Elevated Tank & Pumping Station (London Rd)	Lincoln West Lincoln Grimsby Hamilton ²

² The Town of Grimsby's distribution system is connected to a small portion of the City of Hamilton's distribution system on Main Street West.

Water System	Niagara Region Drinking Water System Facilities	Municipal System(s) Supplied
Port Colborne (PC) – Port Colborne Drinking Water System Description (QMS-WT-PC-P-060)	Barrick Rd. Elevated Tank Fielden Ave. Reservoir King St. Elevated Tank ³ Port Colborne Water Treatment Plant	Port Colborne
Rosehill (RH) – Rosehill Drinking Water System Description (QMS-WT-RH-P-060)	Crescent Park Elevated Tank Erie Rd. Rechlorination Station Fort Erie South (Central Ave) Elevated Tank Ridgeway Standpipe Rosehill Water Treatment Plant Stevensville Reservoir and Pumping Station	Fort Erie
Welland (WE) – Welland Drinking Water System Description (QMS-WT-WE-P-060)	Bemis Elevated Tank Shoalts Dr. Reservoir and Pumping Station Pelham Elevated Tank Welland Water Treatment Plant	Welland Pelham Thorold

6.1.2 Treatment

The following processes are part of Niagara Region's multi-barrier approach for producing safe drinking water:

Pre-Chlorination

All of Niagara Region's drinking water systems pre-chlorinate their raw water. In the summer (i.e. temperature > 12°C), when zebra mussel infestation is a problem, the water is pre-chlorinated at the intake. When the water temperature is less than 12°C, the water is pre-chlorinated after the intake.

³ King Street Elevated Tank has been isolated from the system and is awaiting decommissioning.

Pre-Treatment (Coagulation, Flocculation and Sedimentation)

A coagulant is added to the raw water to help remove the suspended solids through the flocculation process. After flocculation, the water passes through the settling tanks where the floc is able to settle.

Filtration

Filtration removes debris and particulate remaining in the water after pre-treatment. Filter effluent turbidity is measured continuously to monitor the effectiveness of the filtration process and will alarm if the set point values are exceeded.

Primary Disinfection

Primary disinfection ensures that any potentially pathogenic organisms that are remaining in the water are rendered harmless. Niagara Region's drinking water systems achieve primary disinfection through the use of chlorination (with sodium hypochlorite). Some facilities are also equipped with UV (ultraviolet) disinfection. The effectiveness of the primary disinfection process is continuously monitored on SCADA.

Secondary Disinfection

Secondary disinfection prevents regrowth of micro-organisms within the distribution system. Secondary disinfection is accomplished by adding sufficient sodium hypochlorite to the water to maintain a residual throughout the entire distribution system.

Process Waste Management

Process waste from the pre-treatment and filtration processes is collected and treated prior to being discharged to the environment or sewer.

6.1.3 Transmission

In Niagara, treated water is conveyed through transmission systems, including storage facilities and booster stations, to the local municipal distribution systems.

Niagara Region's transmission systems are illustrated in maps on the [Niagara Navigator \(NIIMS\)](#) system. The NIIMS maps, in combination with the drinking water system descriptions (see Table 1) and the drinking water system process schematics (see Section 6.1.4), provide an overview of the five transmission systems owned and operated by Niagara Region.

6.1.4 Process Flow Charts

Process schematics for each of Niagara Region's drinking water systems are available on Vine as follows:

- [Decew Falls/Niagara Falls Drinking Water System Process Schematic \(QMS-WT-DN-V-060\)](#)
- [Grimsby Drinking Water System Process Schematic \(QMS-WT-GR-V-060\)](#)
- [Port Colborne Drinking Water System Process Schematic \(QMS-WT-PC-V-060\)](#)
- [Rosehill Drinking Water System Process Schematic \(QMS-WT-RH-V-060\)](#)
- [Welland Drinking Water System Process Schematic \(QMS-WT-WE-V-060\)](#)

6.2 Water Source

6.2.1 General Characteristics

All of the source water treated by the Niagara Region is surface water.

General characteristics of each of Niagara Region's drinking water systems are included in each system's respective drinking water system description. Drinking water system descriptions are available on Vine (see links in Table 1).

6.2.2 Common Event-driven Fluctuations, Operational Challenges & Threats

Table 2 lists common event-driven fluctuations and resulting operational challenges and threats that may impact Niagara Region's water systems.

Table 2: Common Fluctuations, Challenges & Threats

Type of Fluctuation	Resulting Operational Challenges and Threats	Action / Control Measure
Seasonal temperature fluctuations	Zebra mussels clogging the intake when raw water temperature > 12°C	Pre-chlorination at intake when raw water temperature >12°C
	Possible taste and odour events in late summer / early fall	Granular Activated Carbon (GAC) filters, or Powdered Activated Carbon (PAC)
	Frazil ice may occur when water temperature is around 0°C ⁴	Cleared by contracted diving team
Event-driven fluctuations	High winds and storm events causing increased raw water turbidity	Continual monitoring & process changes if necessary

Further details of event-driven fluctuations common to each of Niagara Region's drinking water systems are included in each system's respective drinking water system description. Drinking water system descriptions are available on Vine (see links in Table 1).

6.3 Critical Upstream & Downstream Processes

Niagara Region actively participates in source protection activities and initiatives; these source protection initiatives protect the Region's upstream water sources.

Local area municipalities own and operate distribution systems downstream of each of Niagara Region's drinking water systems (see Table 1, page 7).

⁴ Although not all facilities may experience this event, all are equipped to handle it if it should occur.

7. Risk Assessment

A risk assessment procedure has been developed and implemented that:

- Identifies potential hazardous events and associated hazards, including those required by the Ministry of the Environment, Conservation, and Parks (MECP);
- Assesses the risks associated with the occurrence of hazardous events;
- Ranks the hazardous events according to their level of risk;
- Identifies control measures;
- Identifies critical control points (CCPs);
- 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.

[Drinking Water System Risk Assessment \(QMS-WT-ALL-P-070\)](#) is available on Vine.

8. Risk Assessment Outcomes

The Risk Assessment Outcomes Table identifies hazardous events, associated risk scoring, control measures, CCPs and their respective CCLs, procedures for monitoring CCLs, procedures for responding to CCL deviations, and procedures for reporting and recording deviations. [Tracking Critical Control Limit \(CCL\) Deviations \(OP-WT-ALL-P-028\)](#) discusses how CCL deviations are summarized and tracked.

As an output from the Operating Authority's annual Risk Assessment exercises, CCPs for Niagara Region's drinking water systems are identified as:

- [CCP: Coagulant \(Aluminum Sulphate\) Feed \(OP-WT-ALL-P-006\)](#)
- [CCP: Secondary Disinfection \(Distribution Chlorine\) \(OP-WT-ALL-P-007\)](#)
- [CCP: Filter Effluent Turbidity \(OP-WT-ALL-P-008\)](#)

- [CCP: Primary Disinfectant \(Sodium Hypochlorite\) Feed \(OP-WT-ALL-P-009\)](#)
- [CCP: Verification of Primary Disinfection \(OP-WT-ALL-P-010\)](#)

9. 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 five drinking water systems and their associated facilities. (Refer to Section 1.3 for exclusions.)

- 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.

What We Do

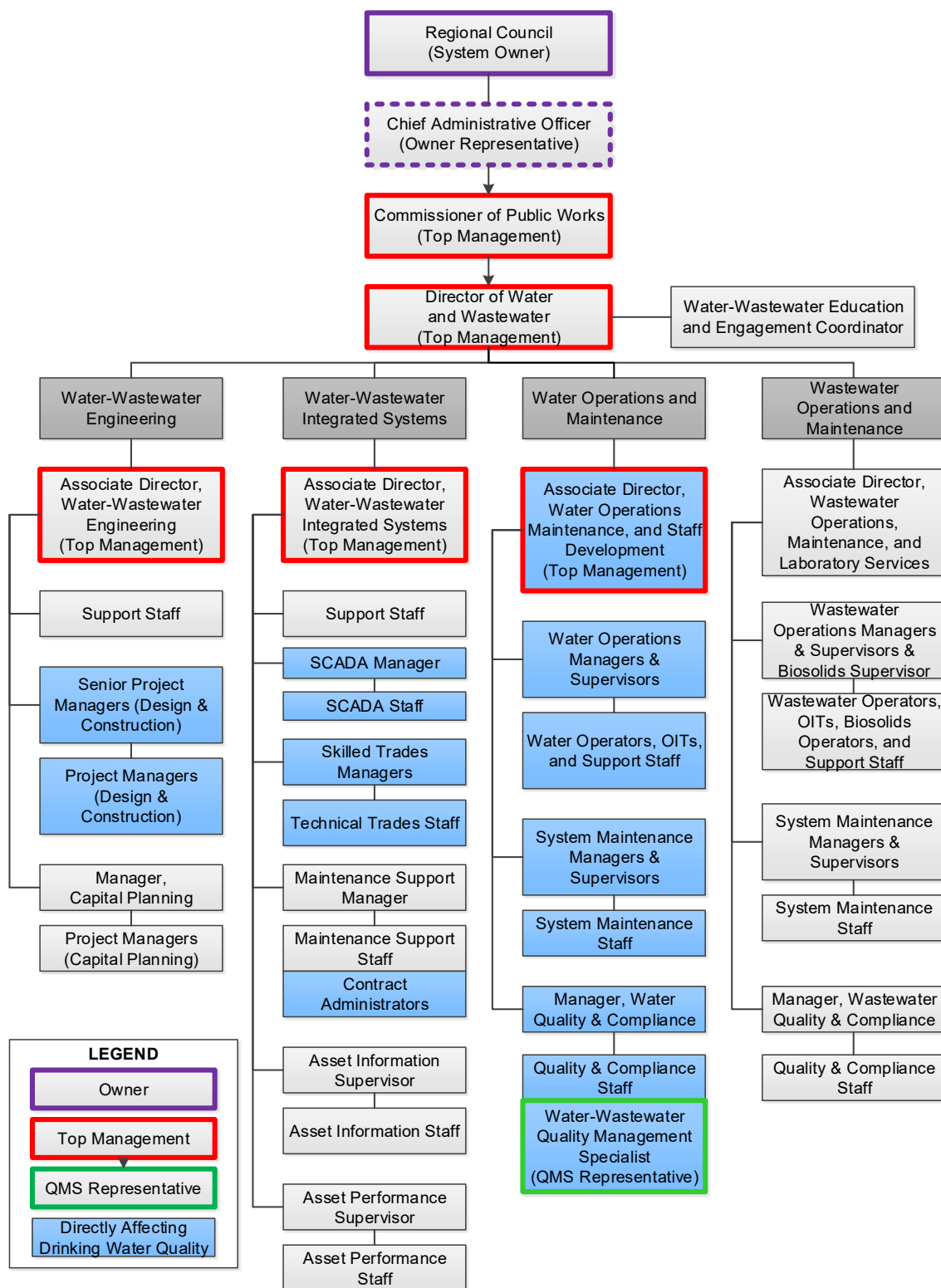
The Water and Wastewater Services Division is made up of a dedicated team of approximately 250 employees working throughout the Niagara Region on the water and wastewater systems.

The Division is divided into four working groups:

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

The organizational structure of the Water and Wastewater Services Division, including designation/appointment of key QMS roles, is illustrated in Figure 2.

Figure 2: Water and Wastewater Services Division – Organizational Structure



Each of the four working groups has varying levels of responsibility for drinking water quality. Core responsibilities of staff in each group, as well as specific duties for those positions that directly impact drinking water quality, are identified in Table 3. Table 3 also identifies responsibilities of the System Owner, Top Management and the QMS Representative. *(NOTE: Positions that are greyed are have been deemed to not directly impact drinking water quality.)*

Table 3: Water and Wastewater Services Division – 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 safe drinking water to connected distribution systems of the Local Area Municipalities – Endorse Niagara Region's QMS 	<ul style="list-style-type: none"> – Perform listed responsibilities – Delegate
Chief Administrative Officer	<ul style="list-style-type: none"> – Act as representative for the Owner – Interact with Top Management 	<ul style="list-style-type: none"> – Perform listed responsibilities
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 – Suggest continual improvements
Director of Water and Wastewater (Top Management)	<ul style="list-style-type: none"> – Provide administration and general management of Water and Wastewater Services Division – Ensure mandated delivery of water supply and wastewater treatment meets federal, provincial and municipal requirements 	<ul style="list-style-type: none"> – Perform listed responsibilities – Establish Divisional priorities; control budgets, costs, and work quality

Position/Group	Responsibilities	Authorities
Director of Water and Wastewater (Top Management) <i>(continued)</i>	<ul style="list-style-type: none"> – Provide guidance and direction to staff to ensure compliance with provincial standards and the promotion of industry best practices for the operation of the water systems – Participate in Management Review – Manage resources to ensure efficient and effective operations 	<ul style="list-style-type: none"> – Take appropriate action to ensure health and safety in emergencies – Delegate – Suggest continual improvements
Water Operations and Maintenance		
Associate Director, Water Operations, Maintenance, and Staff Development (Top Management) (Directly Affects Drinking Water)	<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 – Ensure adequate Health & Safety program in place for Water and Wastewater – Analyze and develop annual current and capital budgets to ensure cost-effective operations – 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 emergency preparedness leadership – Participate in Management Review – May function as "Overall Responsible Operator (ORO)" as required by O. Reg. 128/04 	<ul style="list-style-type: none"> – Perform listed responsibilities – Approve purchases in accordance with approved budget and policies and procedures – Discipline and deal with major personnel matters – Suggest modifications to systems and make changes during construction – Recommend purchase of equipment or services involving major expenditures – Delegate – Suggest continual improvements

Position/Group	Responsibilities	Authorities
Water Operations Managers/ Supervisors <i>(Directly Affects Drinking Water)</i>	<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>) – Suggest continual improvements
System Operator and Operator-in-Training (OIT) <i>(Directly Affects Drinking Water)</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 water samples to monitor/maintain relevant parameters – Serve as “Operator-In-Charge (OIC)” (*) 	<ul style="list-style-type: none"> – Perform listed responsibilities – Suggest continual improvements – NOTES (*): <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

Position/Group	Responsibilities	Authorities
Support Staff <i>(Directly Affects Drinking Water)</i>	<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 – Suggest continual improvements
Water Systems Maintenance Managers <i>(Directly Affects Drinking Water)</i>	<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 – Suggest continual improvements
Systems Maintenance Staff <i>(Directly Affects Drinking Water)</i>	<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"> – Authority to perform listed responsibilities – Authority to Suggest continual improvements

Position/Group	Responsibilities	Authorities
Manager of Water Quality and Compliance <i>(Directly Affects Drinking Water)</i>	<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 – Suggest continual improvements
W&WW Quality Management Specialist (QMS Rep) <i>(Directly Affects Drinking Water)</i>	<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 – Suggest continual improvements
Quality & Compliance Staff <i>(Directly Affects Drinking Water)</i>	<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 – Suggest continual improvements
Supervisor, W&WW Development Program <i>(Directly Affects Drinking Water)</i>	<ul style="list-style-type: none"> – Perform assigned Supervisory functions – Interact with engineering, maintenance, and operations – Ensure due diligence in daily activities and compliance with regulatory requirements – Ensure that staff follow safe working practices – 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. 128/04 	<ul style="list-style-type: none"> – Perform listed responsibilities – Discipline and deal with minor personnel matters – Suggest continual improvements – Delegate

Position/Group	Responsibilities	Authorities
Water-Wastewater Integrated Systems		
Associate Director, Water-Wastewater Integrated Systems	<ul style="list-style-type: none"> – Demonstrate due diligence in daily activities and keep abreast of relevant legislation and regulations – 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 – Continually review overall function of working group 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 – 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 – Suggest continual improvements

Position/Group	Responsibilities	Authorities
SCADA Manager <i>(Directly Affects Drinking Water)</i>	<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 customers both internal and external, 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 – Delegate – Suggest continual improvements
Skilled Trades Managers <i>(Directly Affects Drinking Water)</i>	<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 customers both internal and external, 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 – Suggest continual improvements

Position/Group	Responsibilities	Authorities
SCADA and Technical Trades Staff <i>(Directly Affects Drinking Water)</i>	<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 Suggest continual improvements
Water-Wastewater Maintenance Support Manager	<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 customers both internal and external, with efficient and cost effective skilled 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 Suggest continual improvements
Maintenance Support Staff (CMMS, Clerks)	<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 Maintenance staff Complete clerical functions Assist with customer service activities, including responding to complaints 	<ul style="list-style-type: none"> Perform listed responsibilities Suggest continual improvements
Contract Administrators <i>(Directly Affects Drinking Water)</i>	<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 Suggest continual improvements

Position/Group	Responsibilities	Authorities
Asset Information Supervisor	<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 – Suggest continual improvements
Asset Information Staff	<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 – Suggest continual improvements

Position/Group	Responsibilities	Authorities
Supervisor Asset Performance Management	<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 – 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 – Suggest continual improvements
Asset Performance Staff	<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 	<ul style="list-style-type: none"> – Perform listed responsibilities – Suggest continual improvements

Position/Group	Responsibilities	Authorities
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 – 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 	<ul style="list-style-type: none"> – Perform listed responsibilities – Suggest modifications to systems and make changes during construction – Delegate – Discipline and deal with major personnel matters – Suggest continual improvements

Position/Group	Responsibilities	Authorities
Senior Project Manager, Design and Construction (Directly Affects Drinking Water)	<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 – Participate in infrastructure planning and review activities – Participate in public relations, evaluate investigations and preparing reports – Respond to emergencies and complaints – Assist PMs with issues as required 	<ul style="list-style-type: none"> – Perform listed responsibilities – Suggest continual improvements
Project Manager, Design and Construction (Directly Affects Drinking Water)	<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 – Suggest continual improvements

Position/Group	Responsibilities	Authorities
Manager, Capital Planning	<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 – Suggest continual improvements
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 – 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 	<ul style="list-style-type: none"> – Perform listed responsibilities – Suggest continual improvements

Position/Group	Responsibilities	Authorities
Engineering 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 Engineering – Complete clerical functions – Assist with customer service activities, including responding to complaints 	<ul style="list-style-type: none"> – Perform listed responsibilities – Suggest continual improvements
Wastewater Operations		
Associate Director of Wastewater Operations, Maintenance, and Laboratory Services	<ul style="list-style-type: none"> – Accountable for execution and direction of all wastewater operations – Manage Region's wastewater treatment operations to ensure compliance with regulatory requirements and ensure due diligence in daily activities – Ensure staff follow safe work practices as outlined in Health and Safety procedures; provide PPE and training as needed Analyze and develop annual current and capital budgets to ensure that operations are cost effective – Continuously 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 – Participate in Management Review – May 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 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
Wastewater Operations Managers & Supervisors	<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 – Suggest continual improvements – Issue notice of non-compliance – Delegate
Wastewater 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 – Suggest continual improvements

Position/Group	Responsibilities	Authorities
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 wastewater samples to monitor/maintain relevant parameters – Serve as “Operator-In-Charge (OIC)” (*) 	<ul style="list-style-type: none"> – Perform listed responsibilities – Suggest continual improvements – *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
Biosolids Program Manager	<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 – Suggest continual improvements – Delegate
Biosolids-Residual Solids Operator	<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 – Suggest continual improvements

Position/Group	Responsibilities	Authorities
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 – Suggest continual improvements
Manager of Quality and Compliance, 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 	<ul style="list-style-type: none"> – Perform listed responsibilities – Suggest continual improvements – Discipline and deal with minor personnel matters – Issue notice of non-compliance – Delegate
Environmental Laboratory Supervisor	<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 – Suggest continual improvements – Discipline and deal with minor personnel matters – Delegate
Environmental Laboratory Staff	<ul style="list-style-type: none"> – Conduct analytical wastewater and biosolids testing – Follow established protocols for sampling and testing – Provide notification if there is an exceedance 	<ul style="list-style-type: none"> – Perform listed responsibilities – Suggest continual improvements

Position/Group	Responsibilities	Authorities
Environmental Enforcement Staff	<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, or local regulations (including Environmental Compliance Approvals) – Examine permits, licences, applications, and records to ensure compliance with licencing requirements – Prepare, organize, and maintain inspection records – Monitor follow-up actions in instances where violations were found, and review compliance monitoring reports. – Execute relief operational duties 	<ul style="list-style-type: none"> – Perform listed responsibilities – Suggest continual improvements – Recommend notice of non-compliance
Process & Compliance Staff, Wastewater	<ul style="list-style-type: none"> – Process optimization – Technical support – Compliance support – Sampling program development assistance – Benchmarking – Maintain appropriate control of documents and records 	<ul style="list-style-type: none"> – Perform listed responsibilities – Suggest continual improvements

10. Competencies

Niagara Region personnel performing duties directly affecting drinking water 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 directly affecting drinking water quality.

[Competencies \(QMS-WT-ALL-P-100\)](#) documents activities to develop and maintain the required competencies for personnel performing duties directly affecting drinking water quality. The Competencies Procedure also documents activities to ensure that all Operating Authority personnel are aware of the relevance of their duties.

Both the procedure and table are available on Vine.

11. Personnel Coverage

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

[Personnel Coverage \(QMS-WT-ALL-P-110\)](#) is available on Vine.

12. Communications

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

[Communications \(QMS-WT-ALL-P-120\)](#) is available on Vine.

13. Essential Supplies and Services

Niagara Region's drinking water systems require a number of essential supplies and services for the production of safe drinking water. These supplies and services are categorized as:

- Chemical Supplies
- Calibration Services

- Laboratory Services
- Miscellaneous Supplies/Services

A general overview of essential supplies and services, methods to ensure their procurement, and procedures for quality assurance is provided in [Essential Supplies and Services \(QMS-WT-ALL-P-130\)](#); the procedure is available on Vine.

Essential supplies and services for both water and wastewater are identified on the [“Essential Supplies and Services” Vine page](#). The table can be filtered to show only those supplies and services used in respect of Niagara Region’s drinking water systems.

NOTE: Only drinking water system supplies and services fall within the scope of this Operational Plan.

14. Review, Rehabilitation and Renewal of Infrastructure

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

[Review, Rehabilitation, and Renewal of Infrastructure \(QMS-WT-ALL-P-140\)](#) is available on Vine.

15. Infrastructure Maintenance

Niagara Region maintains an effective maintenance program. The maintenance program includes planned and unplanned maintenance, renewal and rehabilitation of infrastructure that is typically funded from the current budget. [Maintenance \(QMS-WT-ALL-P-150\)](#) describes the

maintenance program, long-term maintenance, rehabilitation, and renewal plans, the means to monitor maintenance effectiveness, and how maintenance programs are communicated to the Owner.

[Maintenance \(QMS-WT-ALL-P-150\)](#) is available on Vine.

16. Sampling, Testing and Monitoring

Sampling, testing and monitoring activities are essential to confirm water quality and to be compliant with legislation and regulations. [Sampling, Testing and Monitoring \(QMS-WT-ALL-P-160\)](#) describes these activities and how results are recorded and shared.

To complement the procedure, the following tables outline the sampling, testing, and monitoring activities undertaken at each WTP:

- [Sampling, Testing & Monitoring Activities – DeCew Falls WTP \(QMS-WT-DF-T-160\)](#)
- [Sampling, Testing & Monitoring Activities – Grimsby WTP \(QMS-WT-DF-T-160\)](#)
- [Sampling, Testing & Monitoring Activities – Niagara Falls WTP \(QMS-WT-DF-T-160\)](#)
- [Sampling, Testing & Monitoring Activities – Port Colborne WTP \(QMS-WT-DF-T-160\)](#)
- [Sampling, Testing & Monitoring Activities – Rosehill WTP \(QMS-WT-DF-T-160\)](#)
- [Sampling, Testing & Monitoring Activities – Welland WTP \(QMS-WT-DF-T-160\)](#)

All of the above documents are available on Vine.

17. Measurement & Recording Equipment Calibration & Maintenance

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

[Measurement and Recording Equipment Calibration and Maintenance \(QMS-WT-ALL-P-170\)](#) is available on Vine.

18. Emergency Management

Emergency preparedness is achieved by following Niagara Region's Emergency Response Procedures (ERP) Manual for Water and Wastewater Systems. The ERP Manual includes response and recovery procedures for potential emergencies that could impact drinking water quality. Each procedure is laid out step by step and clearly notes responsibilities of those involved. 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. Internal Audits

Internal audits add value to Niagara Region's operations by providing feedback about the QMS and its effectiveness. [Internal Auditing \(QMS-WT-ALL-P-190\)](#) 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 of this Operational Plan).

[Internal Auditing \(QMS-WT-ALL-P-190\)](#) is available on Vine.

20. Management Review

Management Reviews are performed to ensure the continuing suitability, adequacy and effectiveness of the QMS. [Management Review \(QMS-WT-ALL-P-200\)](#) documents the process followed in undertaking the review.

[Management Review \(QMS-WT-ALL-P-200\)](#) is available on Vine.

21. Continual Improvement

Niagara Region maintains and continually improves its Water QMS through annual audits, management reviews, implementation of best management practices, process optimization, and staff development, and measures the effectiveness of these continual improvement initiatives.

Through the internal audit process, corrective actions and preventive actions/opportunities for improvement are identified and reported in order to detect and eliminate non-conformances. [Corrective Action, Preventive Action, and Best Practices \(QMS-WT-ALL-P-210\)](#) outlines the Operating Authority's corrective and preventive action processes.

Deficiencies identified as part of the management review are discussed and action plans are created to improve the QMS.

Niagara Region reviews and considers best practices from a multitude of sources, including but not limited to the MECP's published list, regulatory inspections, benchmarking activities, and networking with peers. Implemented best practices are tracked as preventive actions/opportunities for improvement.

Niagara Region staff efforts are critical for continual improvement of the QMS. We are committed to providing effective staff development opportunities (i.e. courses, workshops, on the job training) in an effort to continually improve our operations.

[Corrective Action, Preventive Action, and Best Practices \(QMS-WT-ALL-P-210\)](#) is available on Vine.

Table of Revisions:

Revision	Date	Description of Revision	Updated By
0	Oct. 29, 2008	Operational Plan created	Heather Sim
1	Oct. 5, 2009	Administrative revisions include: (i) the addition of new Associate Director positions for Water and Wastewater Operations, and the removal of the Manager, Water Operations, following Organizational change; (ii) the addition of Support Staff to each area; (iii) the addition of Manager of Quality & Compliance, Process & Development Staff and Water Support Staff to the “directly impacting water quality” group; (iv) the revision of procedure numbers following revision to the Document Naming Convention Procedure; and (v) the addition of the Table of Revisions.	Jocelyn Koteles (Authorized by Commissioner of Public Works, Ken Brothers)
<i>Entered into EtQ – October 27, 2011</i>			
2	Sep. 24, 2012	Revised procedure to include: (i) updated links to relevant documents; (ii) administrative changes to positions/titles and added the Contract Administrator/Security Coordinator to the table of positions affecting the quality of drinking water (CAR#00019); (iii) identification of the Coordinator W&WW Quality Management as the QMS Representative; (iv) removed individual risk assessment outcome records and added reference to the risk assessment outcome table (QMS-WT-ALL-080-F1) and the respective CCP response procedures; (v) Removed “ <i>The Drinking-Water System Risk Outcomes Summary is available on Sherpa</i> ” from section 8.0 Risk Assessment Outcomes	Jen Croswell
3	Jan. 2, 2013	Revised procedure to include: (i) Table 3: Responsibilities and Authorities, will include “directly affects drinking water” under titles/groups which are listed in Figure 1: Water and Wastewater Services Division Organizational Chart as directly affecting the drinking water; (ii) Figure 1: Water and Wastewater Services Division Organizational Chart will be revised to include a blue box, in addition to the red box, around the Associate Director, Water Operations to indicate that the position directly affects drinking water and a member of Top Management; (iii) To provide clarity for external audiences, the Operational Plan, Table 3: Responsibilities and Authorities will be revised to include a list of maintenance staff group categories under the Title/Group column. The above revisions were made in response to external CARs J0322584-3 and J0322584-5. Additional revisions include: (i) An update to the current mission statement; (ii) updated the document ID for the Risk Assessment Outcomes Table, from QMS-WT-ALL-080-F1 to QMS-WT-ALL-081, to reflect that the Risk Assessment Outcomes Table is a living document and not a form.	Jen Croswell

Revision	Date	Description of Revision	Updated By
4	Apr. 22, 2014	Administrative revisions include: (i) the addition of the Approval, License and Amendment Procedure (QMS-ALL-ALL-021) and Ministry of Environment Inspection Document Request Procedure (QMS-WT-ALL-022) to section 2, Quality Management System Policy; (ii) the addition of Tracking Critical Control Limit (CCL) Deviations (OP-WT-ALL-807) to section 8, Risk Assessment Outcomes; (iii) the removal of Integrated Solutions Support Manager and the revisions of Process & Development Staff to Quality & Compliance Staff to section 9, Organizational Structure, Roles, Responsibilities and Authorities; (iv) revisions to Table 1: Niagara Region's Drinking-Water Systems in section 6, Drinking-Water Systems; (v) identification of a backup QMS Representative to section 4, QMs Representative; and (vi) Minor administrative edits throughout.	Jen Croswell
5	Jun. 29, 2015	Operational Plan endorsed by the System Owner and Top Management – Signature sheet to be added to document endorsement, no further revisions.	Jen Croswell
6	Jan. 7, 2016	Revisions to: <ul style="list-style-type: none"> Section 2 – updated QMS Policy poster graphic (Mar 31, 2015 Rev 1) Section 3 – revised how written records of commitment and endorsement are obtained and updated Section 9 – added the Associate Director Engineering to Top Management (OFI 2015-002-Internal); expanded Engineering and Wastewater Operations staff to reflect positions in the Wastewater Operational Plan; added Supervisory Development Program position; included additional responsibilities in regards to “scoping, design and construction of projects” maintenance manager positions (OFI-14-02) Minor administrative revisions throughout 	Jen Croswell
7	Oct. 31, 2016	<ul style="list-style-type: none"> Identified Engineering staff (Senior Project Managers and Project Managers) as staff whose work directly affects drinking water quality. Revised organizational structure and position titles to reflect reorganization of W-WW Services Division and results of the Corporate Job Evaluation Process. Updated procedure links Updated document IDs in accordance with revised document numbering conventions 	Rachel Whyte

Revision	Date	Description of Revision	Updated By
8	Aug. 24, 2018	<ul style="list-style-type: none"> Changed “Sherpa” to “Vine” to reflect implementation of new Regional intranet. Removed reference to controlled document “Essential Supplies and Services Table (QMS-WT-ALL-T-130)” and included reference to “Essential Supplies and Services” Vine page. Removed references to Regulatory Updates (ADM-WT-ALL-P-003), Drinking Water System Licence and Permit Amendments (ADM-WT-ALL-P-004), and MOECC Inspection Document Requests (ADM-WT-ALL-P-005). These procedures align with the MECP inspection process and are not considered to fall directly within the scope of the Drinking Water Quality Management System. Operational Plan. Updated list of drinking water facilities in Table 1 (page 7). Added discussion of best practice review and preventive actions as forms of continual improvement, and noted that effectiveness of continual improvement initiatives is measured. Changed staff title from Manager, Infrastructure Planning & Asset Management to Manager, Capital Planning (as per Divisional memo, 4Dec2017). Updated procedure hyperlinks as required. 	Rachel Whyte

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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Appendix 2 Wastewater System Descriptions:

- [Anger Avenue Wastewater System Description \(QMS-WW-FE-P-060\)](#)
- [Baker Road Wastewater System Description \(QMS-WW-BR-P-060\)](#)
- [Crystal Beach Wastewater System Description \(QMS-WW-CB-P-060\)](#)
- [Garner Road Biosolids Handling and Dewatering Facility System Description \(QMS-WW-GR-P-060\)](#)
- [Niagara Falls Wastewater System Description \(QMS-WW-NF-P-060\)](#)
- [Niagara-on-the-Lake Wastewater System Description \(QMS-WW-NL-P-060\)](#)
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- [Stevensville-Douglastown Lagoon Wastewater System Description \(QMS-WW-SD-P-060\)](#)
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Appendix 3 Wastewater System Process Schematics:

- [Anger Avenue WWTP Process Schematic \(QMS-WW-FE-V-060\)](#)
- [Baker Road WWTP Process Schematic \(QMS-WW-BR-V-060\)](#)
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- [Niagara Falls WWTP Process Schematic \(QMS-WW-NF-V-060\)](#)
- [Niagara-on-the-Lake WWTP Process Schematic \(QMS-WW-NL-V-060\)](#)
- [Port Dalhousie WWTP Process Schematic \(QMS-WW-PD-V-060\)](#)
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- [Queenston WWTP Process Schematic \(QMS-WW-QT-V-060\)](#)
- [Stevensville/Douglastown Lagoon Process Schematic \(QMS-WW-SD-V-060\)](#)
- [Seaway WWTP Process Schematic \(QMS-WW-SW-V-060\)](#)
- [Welland WWTP Process Schematic \(QMS-WW-WE-V-060\)](#)

Appendix 4**Wastewater System Process Schematics:**

- [Anger Avenue WWTP System Schematic \(QMS-WW-FE-V-061\)](#)
- [Baker Road WWTP System Schematic \(QMS-WW-BR-V-061\)](#)
- [Crystal Beach WWTP System Schematic \(QMS-WW-CB-V-061\)](#)
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- [Port Weller WWTP System Schematic \(QMS-WW-PW-V-061\)](#)
- [Queenston WWTP System Schematic \(QMS-WW-QT-V-061\)](#)
- [Stevensville/Douglastown Lagoon System Schematic \(QMS-WW-SD-V-061\)](#)
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Appendix 5**[Wastewater System Risk Assessment \(QMS-WW-ALL-P-070\)](#)****Appendix 6****Risk Assessment Outcomes Table (CONFIDENTIAL)****Appendix 7****Competencies**

- [Competencies \(QMS-WW-ALL-P-100\)](#)
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Appendix 8**[Personnel Coverage \(QMS-WW-ALL-P-110\)](#)****Appendix 9****[Communications \(QMS-WW-ALL-P-120\)](#)****Appendix 10****Essential Supplies and Services**

- [Essential Supplies and Services \(QMS-WW-ALL-P-130\)](#)
- [“Essential Supplies and Services” Vine page](#)

Appendix 11**[Review, Rehabilitation and Renewal of Infrastructure \(QMS-WW-ALL-P-140\)](#)****Appendix 12****[Maintenance \(QMS-WW-ALL-P-150\)](#)****Appendix 13****[Sampling, Testing and Monitoring \(QMS-WW-ALL-P-160\)](#)**

Appendix 14	<u>Measurement and Recording Equipment Calibration and Maintenance (QMS-WW-ALL-P-170)</u>
Appendix 15	Water-Wastewater Emergency Response Plan Manual (CONFIDENTIAL)
Appendix 16	<u>Internal Auditing (QMS-WW-ALL-P-190)</u>
Appendix 17	<u>Management Review (QMS-WW-ALL-P-200)</u>
Appendix 18	<u>Corrective Action (QMS-WW-ALL-P-210)</u>

DRAFT

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](#))
- Niagara Falls WWTP Process Schematic ([QMS-WW-NF-V-060](#))
- Niagara-on-the-Lake WWTP Process Schematic ([QMS-WW-NL-V-060](#))
- Port Dalhousie WWTP Process Schematic ([QMS-WW-PD-V-060](#))
- Port Weller WWTP Process Schematic ([QMS-WW-PW-V-060](#))

- Queenston WWTP Process Schematic ([QMS-WW-QT-V-060](#))
- Stevensville/Douglastown Lagoon Process Schematic ([QMS-WW-SD-V-060](#))
- Seaway WWTP Process Schematic ([QMS-WW-SW-V-060](#))
- Welland WWTP Process Schematic ([QMS-WW-WE-V-060](#))

6.3 System Schematics

Schematics for each of Niagara Region's wastewater collection systems are available via the Regional intranet as follows:

- Anger Avenue WWTP System Schematic ([QMS-WW-FE-V-061](#))
- Baker Road WWTP System Schematic ([QMS-WW-BR-V-061](#))
- Crystal Beach WWTP System Schematic ([QMS-WW-CB-V-061](#))
- Niagara Falls WWTP System Schematic ([QMS-WW-NF-V-061](#))
- Niagara-on-the-Lake WWTP System Schematic ([QMS-WW-NL-V-061](#))
- Port Dalhousie WWTP System Schematic ([QMS-WW-PD-V-061](#))
- Port Weller WWTP System Schematic ([QMS-WW-PW-V-061](#))
- Queenston WWTP System Schematic ([QMS-WW-QT-V-061](#))
- Stevensville/Douglastown Lagoon System Schematic ([QMS-WW-SD-V-061](#))
- Seaway WWTP System Schematic ([QMS-WW-SW-V-061](#))
- Welland WWTP System Schematic ([QMS-WW-WE-V-061](#))

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.

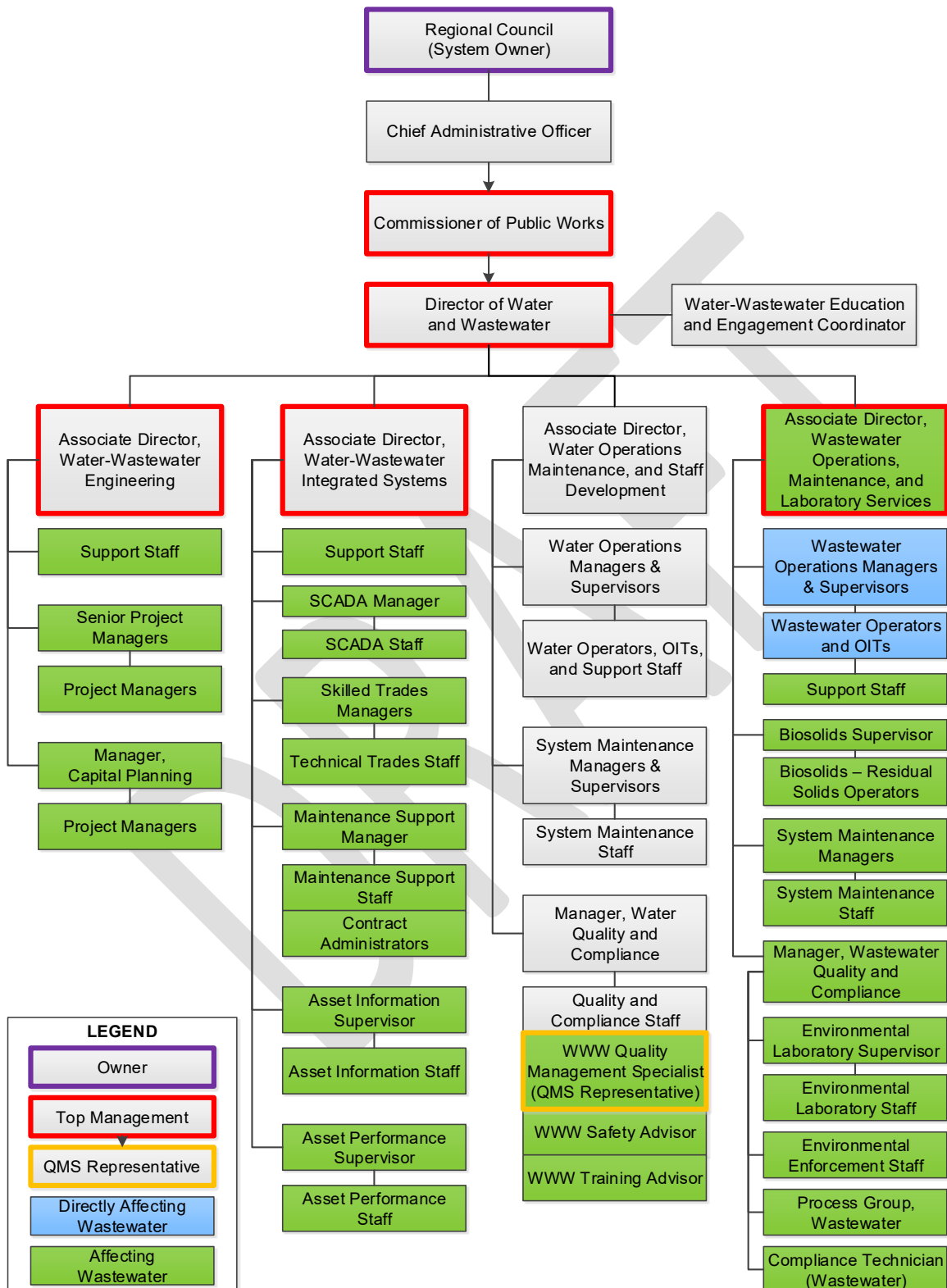
9.1 *What We Do*

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>	

STANDARD OF CARE

It's your duty.



BE INFORMED. BE VIGILANT.

Elected officials have an important role to play in ensuring Niagara communities have access to safe, high quality drinking water. You are legally obligated to do so.

To help you understand your responsibilities, Walkerton Clean Water Centre will be delivering a Standard of Care training course at Regional Headquarters.

WHO	Regional and municipal elected officials in Niagara
WHEN	Tuesday, March 19, 2019 6:30 - 9:30 p.m
WHAT	A tailored-training course designed to inform you of your oversight responsibilities under Section 19 of the Safe Drinking Water Act, and the severe penalties for those who fail to exercise vigilance towards the protection and safety of our drinking water system and its users.
WHERE	Council Chambers Niagara Region Headquarters 1815 Sir Isaac Brock Way Thorold, ON L2V 4T7
RSVP	<p>Carrie Brunet, training advisor, water and wastewater services at carrie.brunet@niagararegion.ca.</p> <p>A live-stream of the training session will be made available for those unable to attend in person.</p> <p>Certificates of completion are unable to be provided for the live-stream training method.</p> <p>Your response by Mar. 13 is appreciated.</p>