
MEMORANDUM

PWC-C 8-2020

**Subject: Status Update – Water and Wastewater Quality Management System
Internal Audit Findings**

Date: March 10, 2020

To: Public Works Committee

From: Rachel Whyte, Water-Wastewater Quality Management Specialist

Purpose

This memorandum has been prepared in response to the following Councillor Information Request made at Public Works Committee held on December 3, 2019:

Provide information respecting any action taken on the areas of non-conformance to the Public Works Committee at its meeting on March 10, 2020. Councillor Gale.

The memorandum provides an update on the status of corrective actions, preventive actions, best management practices, and opportunities for improvement generated during the 2019 Water and Wastewater Quality Management System (QMS) internal audits.

The internal audit reports were previously provided to Public Works Committee as appendices to Report PW 67-2019.

Background and Context

The Water-Wastewater (W-WW) Services Division conducts annual internal audits of the Water and Wastewater QMS to assess conformance of business processes with Ontario's *Drinking Water Quality Management Standard* and associated documented procedures. Thorough and robust audits are undertaken with the goal of continually improving and refining the quality management systems that are currently in place.

Audit findings can be classified as follows:

- **Conformance:** Implemented processes conform to documented procedures.
- **Non-conformance:** There are gaps in conformance between documented procedures and implemented processes.
- **Areas where improvement is possible (i.e., potential non-conformances, opportunities for improvement, best management practices):** Implemented

processes conform to documented procedures, but there are opportunities to refine or augment existing processes.

Findings – 2019 Water QMS Internal Audit

Table 1 below provides an overview of the status of internal audit findings.

Table 1: Status of Findings – 2019 Water QMS Internal Audit

Finding Type	Total Number Issued	Status		
		Not Initiated	In Progress	Closed
Non-conformance	12	2	3	7
Potential non-conformance	7	1	3	3
Best management practice	22	6	4	12
TOTAL	41	9	10	22
		22%	24%	54%

Table 2 (next page) provides details of individual findings.

Table 2: Detailed Internal Audit Findings – 2019 Water QMS Internal Audit

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Document and Records Control	Non-Conformance	<i>Document and Records Control (QMS-WT-ALL-P-050, rev7, 8Feb2017)</i> states that “controlled printed documents that are obsolete are removed from use and replaced with the current printed version”. Several emergency response documents were found to be out of date in controlled hard-copy Emergency Response Plan binders distributed to staff.	In progress. Documents updated. Spot audits planned to ensure that information in printed manuals stays current.	WTCAR-19-001
Document and Records Control	Non-Conformance	<i>Water and Wastewater Emergency Response Plan (ERP-ALL-ALL-P-001, rev 1, 27Jan2017)</i> states “Emergency Response Plan procedures and supporting documents, forms and contact list are updated on an as-needed basis”. The document header in each of the emergency response procedures indicates “to be reviewed annually (reprinted if necessary). No evidence found of documents being reviewed annually.	Closed. Issue has been addressed.	WTCAR-19-002

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Document and Records Control	Potential Non-Conformance	Checked <i>Sampling, Testing, and Monitoring Activities – DeCew Falls WTP (QMS-WT-DF-T-160)</i> and followed the links to the standards. Quality target link for sodium has a broken link. Various broken links to external and internal documents.	In progress. Schedule being developed to review and update all sampling, testing, and monitoring tables.	2019-001-Audit Internal
Document and Records Control	Best Management Practice	Completed emergency & debrief reports are stored as records in the division's management system software. Some staff interviewed are not aware on how to access these records. Suggest making these documents easier to find.	Not initiated. W-WW Quality Management Specialist to establish a shared space on the W-WW Division's intranet page where these reports can be posted.	2019-002-Audit Internal
Document and Records Control	Best Management Practice	It may be beneficial to update chain of custody forms used for sample submission to the Niagara Region Environmental Laboratory, and to consider bringing these forms into the document control program.	Not initiated. Administrative exercise; to be addressed by April 30.	2019-003-Audit Internal
Risk Assessment	Best Management Practice	Staff interviewed recommend that Tech. Trades be invited to participate in risk assessments. <i>Risk Assessment (QMS-WT-ALL-P-070, rev. 8)</i> does not list representation by the group as mandatory.	Closed. Procedure has been revised to reflect optional participation by Technical Trades.	2019-004-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Competencies	Non-Conformance	<i>Competencies Table (QMS-WT-ALL-T-100, rev7, 26Jul2018)</i> identifies the Water QMS training course ("This is How We Do It") as mandatory training. A summary of training records obtained from myLearning showed that not all staff have completed this course in the specified time frame.	Closed. This finding has been consolidated with a similar finding from a previous internal audit (WTCAR-18-002). A project is in progress to update and refresh the mandatory training course; completion will be assessed following implementation of the new training materials.	WTCAR-19-003
Competencies	Non-Conformance	<i>Water and Wastewater Emergency Response Plan (ERP-ALL-ALL-P-001, rev 1, 27Jan2017)</i> specifies that new staff are introduced to the Emergency Response Plan through Water and Wastewater New Employee Orientation and quality management e-learning modules. No evidence found that this is being done.	Closed. Issue is resolved.	WTCAR-19-004
Competencies	Non-Conformance	Training records for several auditees who have transferred to W-WW from other divisions within Niagara Region indicate that these staff have not completed W-WW Orientation. These staff were not aware of the mandatory training requirement.	Not initiated. Training to be scheduled for staff as required.	WTCAR-19-005

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Competencies	Potential Non-Conformance	The Winter-Spring 2019 edition of the W-WW Learning Calendar identifies the “CMMS/EAM for Operations” course as mandatory training, however, this is not reflected in the <i>Competencies Table</i> (QMS-WT-ALL-T-100, rev7, 26Jul2018). As an opportunity for improvement, some staff interviewed recommended that maintenance management software training be provided annually for Operations and be centered around a particular issue or topic each year.	In progress. <i>Competencies Table</i> is under review and will be completed by end of Q1.	2019-005-Audit Internal
Competencies	Best Management Practice	It may be beneficial to develop training and on-boarding plans for Water Operations & Maintenance staff, and to standardize training for lab testing and plant operation. An informal operator training checklist is used in Area 2; however, the checklist has not been formally adopted in all areas.	Closed. This is related to an existing open finding from a previous internal audit (2016-004-Audit Internal). The findings have been consolidated.	2019-006-Audit Internal
Competencies	Best Management Practice	Staff interviewed recommended that Emergency Response Plan training be included in block safety training.	Closed. Emergency response training addressed elsewhere. No action taken.	2019-007-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Competencies	Best Management Practice	Top management interviewed recommended that self-service reports be developed and made available via myLearning to summarize conformance with mandatory training.	Closed. Issue has been addressed.	2019-008-Audit Internal
Competencies	Best Management Practice	Consider providing formal sampling training as mandatory training for the samplers/operators. It may also be beneficial to standardize training for lab testing and plant operation. An informal operator training checklist is used in Area 2; however, the checklist has not been formally approved and adopted by all areas.	Closed. This is related to an existing open finding from a previous internal audit (2016-004-Audit Internal). The findings have been consolidated.	2019-009-Audit Internal
Personnel Coverage	Best Management Practice	Managers interviewed recommended that additional resources be provided in order to maintain current maintenance service levels, grow existing maintenance programs, and assist with capital programs and planning.	Closed. Resource requirements are reviewed during annual budget activities.	2019-010-Audit Internal
Communications	Best Management Practice	There is an opportunity for Top Management to engage and communicate more directly with front-line staff to build relationships and name recognition.	In progress. This will be addressed as part of employee engagement action planning.	2019-011-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Infrastructure Maintenance, Rehabilitation, and Renewal	Non-Conformance	Preventive maintenance schedule creation is outstanding for assets in the Welland drinking water system following completion of the Phase 1 upgrade.	In progress. Preventive maintenance schedules will be created by end of February 2020. W-WW Engineering is reviewing specifications to clarify contractor responsibility for preventive maintenance schedule creation.	WTCAR-19-006
Infrastructure Maintenance, Rehabilitation, and Renewal	Best Management Practice	It is recommended that the <i>Preventive Maintenance Program Optimization</i> work plan (as proposed to the Divisional Leadership Team in 2017) be implemented and a champion be assigned to carry it forward.	Closed. The W-WW Asset Management Group is developing an asset management plan that will include review and optimization of preventive maintenance activities.	2019-012-Audit Internal
Infrastructure Maintenance, Rehabilitation, and Renewal	Best Management Practice	There is an opportunity for Water Operations to improve record-keeping by assigning preventive maintenance schedule work orders to Operators and having Operators comment directly on work order findings.	Not initiated. This process will be reviewed in Q1 2020.	2019-013-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Infrastructure Maintenance, Rehabilitation, and Renewal	Best Management Practice	There is an opportunity to better define and divide workload between Water Maintenance staff. In some instances, all preventive maintenance schedules are assigned to a System Maintenance Person in the area and not directly assigned to the System Maintenance Assistants.	Not initiated. This process will be reviewed in Q2 2020.	2019-014-Audit Internal
Infrastructure Maintenance, Rehabilitation, and Renewal	Potential Non-Conformance	There may be an opportunity to confirm and document the process for establishing maintenance programs for new assets. There seems to be confusion surrounding the roles and responsibilities of various groups involved in this process (System Maintenance, Group EAM, Engineering, and consultants/ contractors).	Closed. The W-WW Asset Management Group is developing an asset management plan that will include review and optimization of preventive maintenance activities; this finding has been noted as an input to plan development.	2019-015-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Infrastructure Maintenance, Rehabilitation, and Renewal	Potential Non-Conformance	There may be an opportunity to examine the process for work order closure. Staff can only mark a work order as "entire job complete ", regardless of whether or not the preventive maintenance work was done; they must add notes to the work order to indicate whether the work was actually completed. There is a potential for managers to overlook the incomplete status of a work order if they miss the notes in the comments field.	Closed. The W-WW Asset Management Group is developing an asset management plan that will include review and optimization of work order processes; this finding has been noted as an input to plan development.	2019-016-Audit Internal
Infrastructure Maintenance, Rehabilitation, and Renewal	Best Management Practice	It may be beneficial to include the preventive maintenance schedule revision process in a documented and controlled SOP. May consider updating <i>Maintenance (QMS-WT-ALL-P-150, rev5)</i> to include this information.	Closed. The W-WW Asset Management Group is developing an asset management plan that will include review and optimization of preventive maintenance activities; this finding has been noted as an input to plan development.	2019-017-Audit Internal
Infrastructure Maintenance, Rehabilitation, and Renewal	Best Management Practice	Staff interviewed recommend that key performance indicators for maintenance need to be reviewed. Current work order aging report may not be the best measure.	In progress. Selected key performance indicators have been reviewed in recent months; others are pending review.	2019-018-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Sampling, Testing, and Monitoring	Non-Conformance	The auditee in Area 2 water stated that instrument manuals are used as instructions for testing, however, the auditee could not provide the manuals for review.	Closed. Issue has been addressed.	WTCAR-19-007
Sampling, Testing, and Monitoring	Potential Non-Conformance	<i>Sampling, Testing, and Monitoring Activities – DeCew Falls WTP (QMS-WT-DF-T-160)</i> was reviewed and limits/targets compared to those on the log sheets and SCADA alarms. Differences were noted between the settled water limits/targets identified in each source.	Closed. Merged with another related finding (2019-001-Audit Internal).	2019-019-Audit Internal
Sampling, Testing, and Monitoring	Potential Non-Conformance	Sampling bottles received not always matching Chain Of Custody provided by Testmark.	Not initiated.	2019-020-Audit Internal
Emergency Management	Non-Conformance	Reviewed debrief report for watermain break at intersection of Drummond and Gallinger (December 2017). Action items were not assigned in the division's management system software as per <i>Post-Event Debriefing (ADM-ALL-ALL-P-009, rev2, 11Jul2017)</i> .	Not initiated.	WTCAR-19-008

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Emergency Management	Non-Conformance	Auditors looked at the list of spill kits noted in the Welland WTP monthly PM (PM10496 - RT900385): it notes a total of seven spill kits, including three kits in trucks. The auditees noted that they have not inspected kits in trucks. Auditees responsible for completing spill kit inspection PMs were not aware that spill kits in trucks needed to be inspected. None of the noted trucks are still assigned to Welland Water Treatment Plant. Area 1 Maintenance vehicles have spill kits, and staff interviewed indicated that they do check these; however, no evidence of these inspections was provided.	In progress. The spill kit inventory at Welland Water Treatment Plant has been confirmed. The inspection process needs to be refined.	WTCAR-19-009
Emergency Management	Potential Non-Conformance	Follow-up items from the Port Colborne Water Treatment Plant break-in were identified in the debrief record and uploaded to EtQ. Auditors reviewed action items and noted that numerous security-related action items remain outstanding after the security incident at the plant two years ago (Apr 2017).	In progress. Many of the action items have been addressed; some longer-term items remain outstanding. One remaining action item requires significant funding and will be included in a future capital project.	2019-021-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Emergency Management	Best Management Practice	Staff interviewed recommend that the Associate Directors be responsible for assigning action items related to emergency debriefs.	Closed. No action required. Associate Directors have reaffirmed delegation of this authority.	2019-022-Audit Internal
Emergency Management	Best Management Practice	It may be beneficial to more clearly define responsibilities for keeping printed emergency response manuals up to date, and to standardize the responsibilities across all work areas.	In progress. Direction received from Associate Directors that Plant Clerks/Administrative Assistants will be assigned this responsibility; relevant procedure to be updated accordingly.	2019-023-Audit Internal
Emergency Management	Best Management Practice	It is recommended that maintenance staff no longer be required to maintain hard copies of the Emergency Response Plan binder. Several maintenance staff stated that they do not use the binder, as they are taking direction from the manager on site. Furthermore, the Emergency Response Plans are high-level and are geared more toward communication, notification, reporting, sampling, supply/service procurement, etc., which are generally responsibilities of the Incident Manager, not front-line staff.	Closed. Issue has been addressed.	2019-024-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Emergency Management	Best Management Practice	It may be beneficial to procure an X2 tablet computer (like those the managers use) for each of the on-call maintenance staff. For maintenance staff who are expected to respond to emergencies, access to various software programs, etc. is necessary, and network connectivity is greatly simplified with the X2 tablet in comparison to the iPad.	In progress. Assessing cost vs. benefit.	2019-025-Audit Internal
Emergency Management	Best Management Practice	It may be beneficial for managers to take some sort of threat management training.	Closed. Training is under development and is scheduled in the W-WW Learning Calendar.	2019-026-Audit Internal
Internal Audit	Non-Conformance	Section 5.6.1 of <i>Internal Auditing (QMS-WT-ALL-P-190, rev7, 26Jul2018)</i> states that internal auditors submit their checklists within 10 working days of completion of the audit. At least one internal auditor submitted checklists on 11Apr, significantly later than the specified 10-day timeline.	Closed. Issue has been addressed.	WTCAR-19-010

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Internal Audit	Best Management Practice	A list of trained internal auditors is maintained in myLearning, but the list does not account for auditor experience and frequency of skill use. It may be beneficial to require trained auditors to audit at least once in a specified time frame (e.g., 5 years) in order for them to be considered “qualified”.	Closed. No action required.	2019-027-Audit Internal
Continual Improvement	Non-Conformance	Issues were identified with <i>Corrective Action, Preventive Action, and Best Practices (QMS-WT-ALL-P-210, rev7, 27Jul2018)</i> . Section 5.1.3 specifies that approved best practices are to be entered into EtQ’s “Corrective Action” module, however, best practices stemming from inspections are currently tracked in the “Compliance Obligations” module. Also, Section 5.3 refers to “opportunities for improvement”, while the “Corrective Action” module of the EtQ database uses the terminology “preventive action” and “best practices”, not “opportunities for improvement”.	Closed. Issue has been addressed.	WTCAR-19-011

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Continual Improvement	Non-Conformance	Section 5.2.3 of <i>Corrective Action, Preventive Action, and Best Practices (QMS-WT-ALL-P-210, rev7, 27Jul2018)</i> indicates that the QMS Rep works with the Lead Auditor and/or Top Management to identify process owners and assign corrective actions. Most internal audit findings from the 2018 internal audit remain at the “Investigation/ Root Cause” phase and have not been assigned to process owners.	Closed. Issue is resolved.	WTCAR-19-012
Continual Improvement	Best Management Practice	Staff interviewed recommend that a process for prioritizing opportunities for improvement be developed and implemented.	Not initiated. To be considered at next procedure review.	2019-028-Audit Internal
Continual Improvement	Best Management Practice	During internal audits, internal auditors often identify best practices for evaluation. It is recommended that internal audits be included in the SOP as a source of best practices.	Not initiated. To be considered at next procedure review.	2019-029-Audit Internal

Findings – 2019 Wastewater QMS Audit

Table 3 below provides an overview of the status of internal audit findings.

Table 3: Status of Findings – 2019 Wastewater QMS Internal Audit

Finding Type	Total Number Issued	Status		
		Not Initiated	In Progress	Closed
Non-conformance	23	2	8	13
Opportunity for improvement	29	11	6	12
TOTAL	52	13	14	25
		25%	27%	48%

Table 4 provides details of individual findings.

Table 4: Detailed Internal Audit Findings – 2019 Wastewater QMS Internal Audit

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
QMS Representative	Opportunity for Improvement	Legislative changes are communicated by email and within procedures, but no formal procedure exists to document the communication process. Consider documenting the process as a controlled procedure.	Closed. “Wastewater Regulatory Updates” procedure has been developed and is awaiting final approval.	2019-030-Audit Internal
Document and Records Control	Non-conformance	<i>Document and Records Control (QMS-WW-ALL-P-050, rev1, 30Sep2019)</i> identifies Operator certifications as controlled records and specifies that they are to be posted at “respective wastewater treatment plants”. Auditors observed gaps in posted certificates at Area 2 facilities.	Closed. Issue has been addressed.	WWCAR-19-001
Document and Records Control	Non-conformance	<i>Document Control (QMS-WW-ALL-P-050, rev1, 30Sep2019)</i> specifies that only current documentation should be available for use. There were several outdated documents found at the Baker Road treatment plant, including several contact lists and pump station sheets.	Closed. Not deemed to be a non-conformance. Contact lists are not problematic unless they are contradictory; pump station sheets fall outside the scope of the QMS.	WWCAR-19-002

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Document and Records Control	Non-conformance	<i>Document Control (QMS-WW-ALL-P-050, rev1, 30Sep2019)</i> specifies that only current documentation should be available for use. There were several outdated documents found at the Welland and Seaway wastewater treatment plants.	In progress. Outdated documents were removed at time of audit; document currency will be verified at a future audit.	WWCAR-19-003
Document and Records Control	Non-conformance	<i>Bypass, Spill, and Overflow Notification and Reporting (OP-WW-ALL-P-038, rev2, 1Mar2018)</i> outlines the processes in place for addressing, reporting, and communicating bypasses, planned and unplanned spills, and overflows. Deficiencies were identified with the documented procedure, relating primarily to spill reporting and communication.	Closed. Procedure has been updated to address identified gaps; staff training to be addressed under a separate finding (2019-040-Audit Internal).	WWCAR-19-004
Document and Records Control	Non-conformance	The requirements of <i>Clean-Up of Sewage Spills (OP-WW-ALL-P-004, rev4, 13Oct2016)</i> do not align with the requirements outlined in <i>Bypass, Spill, and Overflow Notification and Reporting (OP-WW-ALL-P-038, rev2, 1Mar2018)</i> , and in some cases are contradictory.	In progress. Procedures have been revised to ensure alignment; <i>Clean-Up of Sewage Spills</i> is awaiting final approval.	WWCAR-19-005

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Document and Records Control	Non-conformance	<i>Mandatory Training (QMS-WW-ALL-100, rev0, 7Feb2014)</i> identifies the <i>Mandatory Training Table (QMS-WW-ALL-101)</i> as the document that outlines mandatory training for staff. This reference is outdated, as mandatory training requirements for staff affecting wastewater are now included within the <i>Competencies Table (QMS-ALL-ALL-T-100, rev7, 26Jul2018)</i> .	In progress. Procedure has been updated to reflect current practice and is currently being reviewed.	WWCAR-19-006
Document and Records Control	Non-conformance	<i>Essential Supplies and Services (QMS-WW-ALL-130, rev2, 2Mar2015)</i> specifies that “a list of all the essential supplies and services associated with operational functions are listed in...the <i>Essential Supplies & Services Table (QMS-WW-ALL-131)</i> ”. This reference is outdated, as the Essential Supplies and Services Table is now available as an electronic Vine page.	Closed. Procedure has been updated to reflect current practice.	WWCAR-19-007

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Document and Records Control	Opportunity for Improvement	Consider removing specific details of spill reporting processes from <i>Trunk Sewer or Forcemain Break Investigation and Repair (OP-WW-ALL-P-017, rev1, 16Dec2016)</i> and instead include a reference out to <i>Bypass, Overflow and Spill Notification and Reporting (OP-WW-ALL-P-038)</i> .	In progress. Procedure is being reviewed and revised.	2019-031-Audit Internal
Document and Records Control	Opportunity for Improvement	An auditee at the Welland Wastewater Treatment Plant noted that there were staffing shortages on 8Sep2019 that required him to assume care and control of the Seaway and Crystal Beach treatment plants and operate all three plants from the Welland plant. A review of logbook entries and access control showed that the auditee does not have access to update the logbooks for Seaway and Crystal Beach. It may be beneficial to ensure that all Operators within each area have access to logbooks for the facilities over which they may be asked to assume care and control.	In progress. User permissions have been manually updated. The division is looking for ways to automate this process.	2019-032-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Document and Records Control	Opportunity for Improvement	An auditee at the Welland Wastewater Treatment Plant stated that details of bypass events are logged in plant logbooks (eRIS) and on the plant log sheet. Relevant information is also entered on a paper-based log titled "Welland WWTP Oct 2019". If this paper log is needed or useful to staff, it may be beneficial to add a more descriptive name to the form so that its purpose and use may be easily identified.	Not initiated. Discussion required with Area Manager to determine need for this paper record.	2019-033-Audit Internal
Document and Records Control	Opportunity for Improvement	Recommendations for improvement were received from auditees relating to controlled QMS document formatting and access, including creating a link to the Essential Supplies and Services page in a more conspicuous location on Vine; including links to relevant Environmental Compliance Approvals on area e-boards; reorganizing the "Contractors" section of the <i>Emergency Contact List (ERP-ALL-ALL-T-002, rev14, 30Sep2019)</i> to more clearly identify the types of services provided by each contractor.	Closed. Improvements have been implemented.	2019-034-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Document and Records Control	Opportunity for Improvement	It is recommended that Operations and Maintenance Managers be advised of where debrief records are stored, how they can be accessed, and what supporting information should be stored with the debrief record. Additionally, it is recommended that Operators be provided with access to spill reports.	Not initiated. Location to be established on Vine for sharing of this information.	2019-035-Audit Internal
Document and Records Control	Opportunity for Improvement	Consider improvements to the process for recording and accessing bypass data (e.g., dates, volumes, etc.). The data is stored in several locations, needs to be transcribed into several systems (which can lead to errors), and staff find the overall process to be confusing.	Not initiated. Longer-term project required to address this issue; priority to be established.	2019-036-Audit Internal
Document and Records Control	Opportunity for Improvement	The Asset Performance Team has several procedures in place to ensure that field work is undertaken consistently. These documents are currently uncontrolled and saved to a Regional network drive. It may be beneficial to include these procedures within the controlled document structure in the division's management system software.	Not initiated. To be discussed; priority to be established.	2019-037-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Risk Assessment	Opportunity for Improvement	<i>Wastewater System Risk Assessment (QMS-WW-ALL-P-070, rev2, 7Feb2019)</i> identifies that the Wastewater Compliance Technologist takes the lead in facilitating risk assessment activities. This responsibility was transferred to the W-WW Quality Management Specialist for the 2019 review. The procedure should be revised to reflect this change in process ownership.	Closed. Procedure has been revised and approved.	2019-038-Audit Internal
Organizational Structure, Roles, Responsibilities, and Authorities	Non-conformance	The <i>Wastewater QMS Operational Plan (QMS-WW-ALL-MAN-010, rev2, 28Mar2019)</i> identifies personnel filling key QMS roles, including the roles of the QMS Representative and Top Management. Numerous auditees were not able to identify the personnel in these positions. There is an opportunity to improve recognition of these key QMS roles.	Closed. Communication provided to staff to clarify role ownership.	WWCAR-19-008

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Competencies	Non-conformance	The <i>Competencies Table (QMS-ALL-ALL-T-100, rev7, 26Jul2018)</i> requires that Wastewater QMS training be taken within six months of hire and once every three years on a continual basis. Across all audit areas, most auditees did not have up-to-date Wastewater QMS training.	Closed. This finding has been consolidated with a similar finding from a previous internal audit (WWCAR-17-005). A project is in progress to update and refresh the mandatory training course; completion will be assessed following implementation of the new training materials.	WWCAR-19-009
Competencies	Opportunity for Improvement	Almost all auditees brought up in discussion that onboarding is less than desirable. Procedure retrieval processes are not being captured in onboarding. Audit interviews indicate that new staff are not being introduced to and/or retaining knowledge of basic QMS concepts. New staff are not familiar with mandatory training requirements.	Closed. This finding has been consolidated with a similar finding from a previous internal audit (2016-004-Audit Internal). A project is in progress to develop more robust site-specific Operator training.	2019-039-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Competencies	Opportunity for Improvement	There is an opportunity to provide additional training for Operations staff on key bypass, spill, and overflow concepts, including definitions of key terms (planned/unplanned spill, planned/unplanned bypass, overflow), and the practical differences between these events; the purpose of Public Health notification in spill, bypass, and overflow events; timing of notifications to Public Health (“forthwith”); and reinforcement of reporting protocols.	In progress. Training under development; to be delivered by end of Q1 2020.	2019-040-Audit Internal
Competencies	Opportunity for Improvement	It may be beneficial to establish a routine process for the review of training records to identify outstanding staff whose mandatory training is overdue or outstanding.	Closed. Several processes exist that can be used to flag upcoming or overdue training requirements.	2019-041-Audit Internal
Personnel Coverage	Non-conformance	<i>Call-In and Overtime Management (OP-ALL-ALL-P-003, rev3, 11Jun2019)</i> specifies that additional staff are to be called in by the On-Call Manager. An auditee in Area 3 indicated that he/she has been asked to make call-ins in the past.	Closed. Issue has been addressed.	WWCAR-19-010

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Personnel Coverage	Opportunity for Improvement	Operations Management may wish to consider overlapping Operator shifts by 30min to ensure that there is adequate opportunity for proper communication at shift change.	Closed. Shift scheduling will not be changed at this time.	2019-042-Audit Internal
Personnel Coverage	Opportunity for Improvement	<i>Personnel Coverage (QMS-WW-ALL-P-110, rev2, 26Jul2018)</i> states that "Sectional Management reviews personnel coverage semi-annually [and] any staffing-related concerns and recommendations [are] put forward to Top Management as part of the Management Review." In practice, workforce planning is completed as part of the annual budgeting process.	In progress. Procedure to be revised to reflect current practice; changes have been initiated.	2019-043-Audit Internal
Communications	Non-conformance	<i>Communications (QMS-WW-ALL-P-120, rev1, 25Aug2017)</i> indicates that the Wastewater QMS Policy is to be posted in an accessible location at each wastewater treatment facility. Auditors toured the administration building at the Welland WWTP and did not observe a copy of the Wastewater QMS policy posted at this facility.	Closed. Issue has been resolved.	WWCAR-19-011

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Communications	Non-conformance	The Ministry of the Environment, Conservation, and Parks authorized a planned spill of digester gas at the Seaway Wastewater Treatment Plant to begin on or after 25Apr2019; the Ministry authorization included a request that the spill be reported to the Spills Action Centre at time of occurrence. Logbook records for the Seaway plant on Fri, 26Apr2019 note that "[Digester] #2 gas now vented to atmosphere", however, there is no record in the logbook of a call having been placed to notify the Spills Action Centre of the spill.	Closed. A formal spill report was provided to the Ministry at the time of the incident; the report includes notation that the Spills Action Centre was contacted at the time of the incident. The missing logbook comment can be attributed to Operator error. Staff training on this procedure to be addressed under a separate finding (2019-040-Audit Internal).	WWCAR-19-012
Essential Supplies and Services	Non-conformance	The Essential Supplies and Services page identifies the Biosolids Management Agreement as having expired. However, biosolids management is currently under a three-year agreement expiring 31Dec2019, and the Biosolids Manager was unsure who is responsible for updating the updates the Essential Supplies and Services List.	Closed. Required updates are complete, and responsibility for future updates has been appropriately delegated.	WWCAR-19-013

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Essential Supplies and Services	Non-conformance	<i>Communications (QMS-WW-ALL-P-120, rev1, 25Aug2017)</i> specifies that “Top Management communicates with essential suppliers to ensure that they are informed of relevant aspects of the Region’s QMS”. Wastewater laboratory benchtop and handheld instrument calibration is identified as an essential service on the Essential Supplies and Services page; this service is secured through sole-source purchase order on an annual basis currently open until 2020. There is no evidence that information about the Region’s QMS was provided to the current vendor.	In progress. Draft procurement documents for the 2020/21 calibration contract include information about the Region’s QMS. This action item will be closed once the procurement process is complete.	WWCAR-19-014
Essential Supplies and Services	Opportunity for Improvement	It may be beneficial to conduct a review of the supplies and services identified on the Essential Supplies and Services page to ensure that the list remains current and relevant, and that additional essential supplies/services are not missing from the list (e.g., vacuum trucks, construction contractors, etc.).	Not initiated. To be considered in 2020.	2019-044-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Infrastructure Maintenance, Rehabilitation, and Renewal	Non-conformance	<i>Trunk Sewer or Forcemain Break Investigation and Repair (OP-WW-ALL-P-017, rev1, 16Dec2016)</i> states that wastewater system failure reports need to be closed within 10 days of discovery of the failure. As of 30Oct2019, 7 failure reports remain open with initiation dates ranging from June 2017 – June 2019.	Not initiated. No change to-date.	WWCAR-19-015
Infrastructure Maintenance, Rehabilitation, and Renewal	Non-conformance	<i>Trunk Sewer or Forcemain Break Investigation and Repair (OP-WW-ALL-P-017, rev1, 16Dec2016)</i> states that "Wastewater System Failure Reports are required as part of wastewater system inspections" and that the reports are opened upon receipt of mapping coordinates from the field. The failure reports are used as an indirect input to capital planning. Records show that a forcemain break in the area of the South Side Low Lift SPS (Niagara Falls) in May 2018 was recorded using a regular work order, and not a Wastewater System Failure Report as required.	Closed. Issue was investigated and was not found to be systemic. Missing failure report was initiated.	WWCAR-19-016

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Infrastructure Maintenance, Rehabilitation, and Renewal	Opportunity for Improvement	It may be beneficial to clarify whether a wastewater system failure report (or water system failure report) is required if the break occurs on the property of a water or wastewater facility. The auditors found evidence of two main breaks at regional facilities that were not recorded using a system failure report (w/o #538640, watermain break outside Front St. Sewage Pumping Station; w/o #594592, effluent forcemain break at Port Dalhousie Wastewater Treatment Plant).	Closed. The W-WW Asset Management Group is developing an asset management plan that will include review and optimization of work order processes; this finding has been noted as an input to plan development.	2019-045-Audit Internal
Infrastructure Maintenance, Rehabilitation, and Renewal	Opportunity for Improvement	Where planned spills are required in order to complete maintenance work (e.g., planned spill of digester gas at Seaway Wastewater Treatment Plant), there is an opportunity to streamline recordkeeping by linking associated work order records with the corresponding spill reporting records.	Not initiated. Priority to be established. All records are securely stored and retrievable.	2019-046-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Infrastructure Maintenance, Rehabilitation, and Renewal	Opportunity for Improvement	Work orders initiated by Operations staff are routed to the Operations Manager for approval before being sent to the Maintenance Manager. It may be beneficial to adjust maintenance management software permissions and/or create workflows to define how these work orders can be forwarded in the Operations Manager's absence. At present, the work orders will remain in the Operations Manager's maintenance management software inbox until his return to work.	Closed. The W-WW Asset Management Group is developing an asset management plan that will include review and optimization of work order processes; this finding has been noted as an input to plan development.	2019-047-Audit Internal
Infrastructure Maintenance, Rehabilitation, and Renewal	Opportunity for Improvement	It may be beneficial to clarify the process for introducing new assets and instrumentation into the maintenance management software, including responsibilities for provision of asset information to GroupEAM; asset information and documentation that must be provided; in the case of new instrumentation, any initial calibration reports and indication of the applicable calibration program for the subject asset; mechanisms to ensure that the asset is appropriately inventoried and tagged.	Closed. The W-WW Asset Management Group is developing an asset management plan that will include review and optimization of data collection processes; this finding has been noted as an input to plan development.	2019-048-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Sampling, Testing, and Monitoring	Non-conformance	Area 3 Operations staff indicated that agreements are in place to contact Area Municipalities when wet wells at selected sewage pumping stations reach certain levels; these were not noted in any controlled procedure reviewed by the auditors.	In progress. These communication requirements are being incorporated into wastewater sampling, testing, and monitoring procedures that are currently in development.	WWCAR-19-017
Sampling, Testing, and Monitoring	Opportunity for Improvement	The chain of custody used for bypass sampling at Welland Wastewater Treatment Plant includes notation of samples collected at the end of the bypass event. The auditees stated that they do not collect samples at the end of a bypass, and a review of the relevant Environmental Compliance Approval confirmed that end-of-event sampling is not required. It may be beneficial to remove the end-of-event sampling items from the chain of custody template for this facility.	Closed. End of event sampling is no longer a regulated requirement at Welland WWTP. The chain of custody has been revised accordingly.	2019-049-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Sampling, Testing, and Monitoring	Opportunity for Improvement	All Wastewater Treatment Plants should work toward full implementation of laboratory waste management procedures (<i>Transport, Storage and Disposal of Waste and Dangerous Goods, HS-ALL-ALL-P-037, rev0, 29Oct2018</i>). At the Welland, Seaway, and Baker Road Wastewater Treatment Plants, auditors noted that the provided containers for laboratory waste were found to be unlabelled or not in use, and one auditee noted that a certain type of hazardous waste is routinely thrown directly into the garbage.	In progress. Program was formalized in 2019 and requires additional reinforcement. Wastewater Quality and Compliance group to lead additional implementation efforts.	2019-050-Audit Internal
Sampling, Testing, and Monitoring	Opportunity for Improvement	It may be beneficial for the Wastewater Compliance Technologist to include all in-plant process sampling on the plant-specific compliance sampling schedules. This may help to eliminate confusion over sampling requirements, to designate specific days for sampling as a means of division of labour, and to evaluate sampling frequencies to determine if they can be reduced as appropriate.	Closed. At this time, it is preferred to keep compliance-related schedules separate and distinct in order to ensure that sample collection is not missed.	2019-051-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Sampling, Testing, and Monitoring	Opportunity for Improvement	It may be beneficial to consider the installation of a SCADA alarm at the Port Dalhousie Wastewater Treatment Plant that would alert the Operator if the secondary bypass valve is in the open position while plant influent flows are below plant capacity (100MLD). At present, the secondary bypass valve is manually operated, and there is potential for it to be inadvertently opened and/or left in the open position for longer than required.	In progress. SCADA Manager and Area 3 Operations Manager examining options for alarming and/or other improvements.	2019-052-Audit Internal
Sampling, Testing, and Monitoring	Opportunity for Improvement	It may be beneficial to investigate technologies that could flag for Operators when the dechlorination pumps have failed. Previous investigations indicated that alarming was not possible due to pump age, but there may be alternate technologies (e.g., flow meters, etc.) that can achieve this goal. There is a risk of non-compliance if the pumps fail and chlorinated water is released to the environment.	Not initiated. Priority and feasibility would need to be established on a plant-by-plant basis.	2019-053-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Measurement and Recording Equipment Calibration and Maintenance	Non-conformance	<i>Wastewater Calibration (QMS-WW-ALL-170, rev0, 25Jun2014)</i> specifies that dissolved oxygen meters and oxidation-reduction potential meters are calibrated annually. In practice, auditees indicated that these meters are calibrated as needed.	Closed. This finding has been consolidated with a similar finding from a previous internal audit (WWCAR-17-010). The wastewater calibration program is under review, with changes anticipated.	WWCAR-19-018
Measurement and Recording Equipment Calibration and Maintenance	Non-conformance	Section 5.3 of <i>Determination of pH and Temperature in Wastewater (OP-WW-ALL-P-007, rev3, 11Oct2017)</i> states that "bench-top and/or portable pH meter[s] should be calibrated every day, or as used, before any lab work or sample collection is performed". Auditors in Area 1 WW and Area 3 WW did not see evidence to show that bench-top pH meters are being calibrated daily or on an as-used basis, despite the fact that plant lab sheets regularly include results of bench-top pH testing.	Not initiated. Daily calibration requirement to be reinforced with Operations staff.	WWCAR-19-019
Measurement and Recording Equipment Calibration and Maintenance	Non-conformance	Several issues were identified in the plant laboratory at Welland and Seaway Wastewater Treatment Plants related to asset tagging, accuracy of asset information, and expired chemicals.	In progress. Asset information has been updated in the division's maintenance management software. Chemical clean-up to be completed at each plant.	WWCAR-19-020

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Measurement and Recording Equipment Calibration and Maintenance	Opportunity for Improvement	Auditees observed that there is inadequate instrumentation available for monitoring of wastewater remote stations, and that additional flow meters, pressure gauges, etc. would help Operators to be able to identify spills/forcemain breaks more readily.	Not initiated. Long-term approach required to address this finding; the approach will need to consider capital planning, asset management, and calibration needs.	2019-054-Audit Internal
Measurement and Recording Equipment Calibration and Maintenance	Opportunity for Improvement	New chemical oxygen demand reactors were observed in the plant laboratories at both Port Dalhousie and Port Weller Wastewater Treatment Plants. Records indicate that the reactor at Port Dalhousie was purchased 2 months ago, and auditors found an original manufacturer's certificate of calibration; however, the reactor is not tagged with an asset number or a calibration sticker, and it could not be located in the division's maintenance management software.	Not initiated. Follow-up to be completed.	2019-055-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Emergency Management	Non-conformance	<i>Bypass, Overflow, and Spill Notification and Reporting (OP-WW-ALL-P-038, rev2, 1Mar2018)</i> identifies that the Incident Manager can be the Operations Manager (if the spill occurs on the grounds of the main facility) or the Maintenance Manager (if the spill occurs in the collection system). The procedure also specifies that the Incident Manager is required to provide a written report of the spill to federal and provincial authorities. During the audit, auditors observed confusion regarding assignment of the Incident Manager role, including assignment of responsibilities for reporting the spill to the Spills Action Centre and for completing the spill report. As a result, spill reports are not consistently being prepared by the appropriate manager (i.e., Operations or Maintenance, depending on the spill location).	In progress. Relevant documents have been revised to add clarification. Staff training will be completed by the end of Q1 2020.	WWCAR-19-021

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Emergency Management	Non-conformance	<i>Post-Event Debriefing (ADM-ALL-ALL-P-009, rev2, 11Jul2017)</i> specifies that the W-WW Incident Manager is responsible for leading debriefs and preparing associated records. In practice, these activities are conducted by the Wastewater Compliance Technologist or the Water-Wastewater Quality Management Specialist. In addition, auditees commented that the significance test outlined in the procedure may be too onerous for wastewater incidents (particularly in relation to forcemain breaks).	Closed. Issue has been addressed.	WWCAR-19-022
Emergency Management	Opportunity for Improvement	There is an opportunity to improve spill protection at Port Dalhousie Wastewater Treatment Plant by making spill mats available in the chemical delivery areas and enforcing their use.	Not initiated. Follow-up to be completed.	2019-056-Audit Internal
Emergency Management	Opportunity for Improvement	It is recommended that staff of the Capital Program Planning group be invited to attend debriefs where an infrastructure improvement may be required to address the root cause of the event.	Closed. Procedure revised to include this recommendation.	2019-057-Audit Internal

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Continual Improvement	Non-conformance	<p>Since 2017, 36 corrective actions have been identified through the wastewater internal audit process and entered into the corrective action database. Of the 36 corrective actions, 26 are in “open” status.</p> <p><i>Wastewater Corrective Action (QMS-WW-ALL-210, rev0, 30Oct2013)</i> states that preliminary corrective action information is entered into the record, and then “the Lead Auditor assigns the corrective action report to the responsible individual and identifies a date for completion of the investigation and root cause analysis”. All open corrective actions in the database are currently assigned to the Lead Auditor and not the “responsible individual” as identified in the procedure.</p>	<p>In progress. Management, resolution, and closure of corrective actions is an ongoing activity. Many of the open action items have now been assigned to the appropriate owners.</p>	WWCAR-19-023

QMS Element	Finding Type	Details	Status (at Feb 14, 2020)	Finding ID
Continual Improvement	Opportunity for Improvement	<i>Post-Event Debriefing (ADM-ALL-ALL-P-009, rev 2, 11Jul2017)</i> states that actions items generated through debrief activities “are to be recorded, assigned, and managed in EtQ as per the Corrective Action Procedure...(QMS-WW-ALL-P-210 for wastewater)”. Consider revising <i>Wastewater Corrective Action (QMS-WW-ALL-210, rev0, 30Oct2013)</i> to include roles and responsibilities for corrective action assignment when non-conformances/action items are identified outside of internal audits.	Not initiated. To be considered at next procedure review.	2019-058-Audit Internal

Next Steps

The status of the Water and Wastewater Quality Management Systems is communicated to Council on an annual basis. The annual update includes an overview of internal audit results. The water and wastewater internal audit programs allow the division to identify and address gaps in current processes; even where gaps do not exist, the audits present additional opportunities to improve and refine processes. The audit programs are an essential component of the Water and Wastewater Services Division's Quality Management Systems

Respectfully submitted and signed by

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