WASTEWATER QUALITY MANAGEMENT SYSTEM: INTERNAL AUDIT REPORT

OCTOBER 21 – 31, 2019

AREA 1:
NIAGARA FALLS WWTP
ANGER AVENUE WWTP

AREA 2:
WELLAND WWTP
SEAWAY WWTP

AREA 3:
PORT WELLER WWTP
PORT DALHOUSIE WWTP
BAKER ROAD WWTP

ENVIRONMENTAL CENTRE

INTEGRATED SYSTEMS

REPORT PREPARED NOVEMBER 7, 2019

1.0 INTRODUCTION

1.1 Purpose

The purposes of this internal audit were:

- To verify that the Wastewater QMS conforms to the requirements of the DWQMS[1] and the requirements of the Wastewater QMS Operational Plan; and
- To confirm that the QMS has been effectively implemented and properly maintained for all wastewater systems.

Audits were completed between October 21 and October 31, 2019. Internal audits were conducted with Operations and Maintenance management and staff in each of the three wastewater service areas, with the QMS Representative, and with staff of Integrated Systems, members of Top Management, and other support staff.

1.2 Scope

For the 2019 internal audit, the ***Bypass, Overflow, and Spill Notification and Reporting*** process ***(OP-WW-ALL-P-038, rev2, 1Mar2018)*** was selected for auditing; this process covers a multitude of QMS elements. Additional elements and auditees that are not covered within the scope of this process were audited separately on an element-by-element basis, with audit teams focusing on specific elements in each area. Table 1 provides details of the audit scope.

Table 1: Audit Scope per Area/Group

Process	Potential Elements	Area 1	Area 2	Area 3	General
Bypass, Overflow, and Spill Notification and Reporting (OP-WW-ALL-P-038)	2 – QMS Policy 4 – QMS Representative 5 – Document and Records Control 6 – Wastewater System 9 – Org Structure, Roles, Responsibilities and Authorities 10 – Competencies 11 – Personnel Coverage 12 – Communications	✓	✓	✓	✓

[1] As modified by Niagara Region to suit our wastewater services.

Process	Potential Elements	Area 1	Area 2	Area 3	General
	13 – Essential Supplies/Services 14 – Review and Provision of Infrastructure 15 – Infrastructure Maintenance, Rehabilitation and Renewal 16 – Sampling, Testing, and Monitoring 17 – Measurement and Recording Equipment Calibration and Maintenance 18 – Emergency Management 20 – Management Review 21 – Continual Improvement				
N/A	3 – Commitment and Endorsement				✓
N/A	7 – Risk Assessment	✓	✓	✓	✓
N/A	8 – Risk Assessment Outcomes	*Not applicable for Wastewater*			
N/A	19 – Internal Audits				✓

1.3 Selection of Internal Audit Team and Schedule

All internal auditors have completed Internal Auditor Training as required by ***Internal Auditing (QMS-WW-ALL-P-190, rev1, effective 30Sep2019)***.

The audit schedule and auditor assignments are identified in Table 2.

Table 2: Audit Assignments – Auditors and Locations

Area	Auditors	Date/Time	Facility/Subject
Area 1	Michelle Max Keith Lepine Jocelyn Williams	Monday, 28 Oct (am) Monday, 28 Oct (pm)	Niagara Falls WWTP Anger Avenue WWTP
Area 2	Rachel Whyte Jennifer McDowell Jesse Howarth	Monday, 21 Oct (am) Monday, 21 Oct (pm)	Welland WWTP Seaway WWTP
Area 3	Dawn MacArthur	Monday, 28 Oct (pm) Thursday, 31 Oct (am) Thursday, 31 Oct (pm)	Port Weller WWTP Port Dalhousie WWTP Baker Road WWTP
Integrated Systems	Jen Croswell Josh MacArthur	Tuesday, 17 Oct (pm) Thursday, 19 Oct (pm)	Calibration CMMS
General	Jen Croswell Josh MacArthur	Friday, 25 Oct (am) Friday, 25 Oct (pm) Monday, 28 Oct, Wednesday, 30 Oct, Thursday, 31 Oct Tuesday, 29 Oct (am) Tuesday, 29 Oct (pm) Monday, 28 Oct (am), Wednesday, 30 Oct (am) Wednesday, 30 Oct (pm)	Asset Management WW Compliance Tech. Top Management QMS Reps Asset Performance Spvr Maintenance Support Calibration

1.4 Criteria and Methodology

Audit criteria included the following:

- ***Internal Auditing (QMS-WW-ALL-P-190, rev1, effective 30Sep2019***;
- ***Niagara Region Wastewater Operational Plan (rev2, effective 28Mar2019)*** and supporting procedures; and
- Internal audit training materials (various auditor training courses).

Wastewater systems were audited by assigned auditors as noted in Section 1.3 of this Audit Report. Top Management, the QMS Representative, and other support staff were

also interviewed by assigned auditors. Auditor checklists were completed and reviewed with the Lead Auditor; the checklists are not attached, but are filed as per the ***Document & Records Control Procedure (QMS-WW-ALL-P-050, rev1, effective 30Sep2019)***. Individual opening meetings were held at each of the areas prior to the start of the audit.

1.5 Previous Internal Audit Findings

Previous internal audit findings were not reviewed, as many of the associated corrective actions are still in progress. Some of the previous audit findings have been closed, but did not require verification.

1.6 Summary of Previous External Audit Findings

Not applicable. The Wastewater QMS is not subject to external auditing at this time.

1.7 Interviews

The following Operating Authority staff were interviewed as part of the Internal Audit:

- Robert Daw, Area 1 Wastewater Operations Manager
- Wes Foebel, Biosolids Manager
- Jim Chisholm, Area 1 Wastewater System Operator
- Christina Bellon-Graves, Area 1 Wastewater System Operator
- Michael Hall, Area 1 Wastewater System Operator
- Jason Pepperall, Area 1 Wastewater Maintenance Manager (Acting)
- Kristel Stevenson, Area 2 Wastewater Operations Supervisor
- Michael MacLean, Area 2 Wastewater System Operator
- Tyler Mook, Area 2 Wastewater System Operator
- Mike Coleman, Area 2 Wastewater System Operator
- Frank Vasko, Area 2 Wastewater Maintenance Manager
- Aaron Lounsbury, Area 2 Wastewater Maintenance Assistant 1
- Gerry Atkinson, Area 3 Wastewater Operations Manager
- Barry Robbins, Area 3 Wastewater Maintenance Manager
- Mike Wedekind, Area 3 Wastewater System Operator
- Don Smith, Area 3 Wastewater System Operator
- Brent Abernethy, Area 3 Wastewater System Operator
- Andrew Braham, Area 3 Wastewater System Operator
- Joe Tonellato, Director, W-WW *(Top Management)*
- Doug Johnson, Associate Director (Acting), Wastewater Operations, Maintenance, and Laboratory Services *(Top Management)*

- Craig Courteau, Associate Director, W-WW Integrated Systems *(Top Management)*
- Tony Cimino, Associate Director, W-WW Engineering *(Top Management)*
- Richard Pinder, Associate Director, W-WW Asset Management *(Top Management)*
- Rachel Whyte, W-WW Quality Management Specialist *(Backup QMS Representative – Wastewater)*
- Michelle Max, W-WW Quality Management Specialist *(QMS Representative – Wastewater)*
- Alyshia Tuomi, Manager, W-WW Capital Program Planning
- Courtney Reuvers, W-WW Capital Planning Specialist
- Will Belancic, Supervisor, Water-Wastewater Maintenance Support
- Ray Waters, CMMS System Administrator
- Jennifer McDowell, Maintenance Asset Analyst
- Berny Portolesi, Manager, Technical Trades (Instrumentation)
- Glenn Fulton, Supervisor, Asset Performance

2.0 INTERNAL AUDIT RESULTS

2.1 Types of Audit Findings

In documenting audit findings, the following terms and abbreviations are used:

- **C – Conformance:** Audit interviews and sampled records indicate that QMS requirements are met and applicable procedures are implemented as written.
- **NC – Non-conformance:** Audit interviews and sampled records indicate that a requirement of the QMS Standard was not met or a documented procedure was not implemented as written.
- **OFI – Opportunity for improvement**: Conformance was generally observed, but there may be an opportunity to enhance existing processes.

2.2 Summary of Findings

23 non-conformances were identified during the audit relating to document and records control; roles, responsibilities, and authorities; competencies; personnel coverage; communications; essential supplies and services; infrastructure maintenance; sampling, testing, and monitoring; instrument calibration; emergency management; and continual improvement.

29 opportunities for improvement were identified during the audit relating to delegation of QMS Representative responsibilities; document and records control; risk assessment; competencies; personnel coverage; essential supplies and services; infrastructure maintenance; sampling, testing, and monitoring; instrument calibration; emergency management; and continual improvement.

Table 3 provides a summary of findings from the QMS Internal Audit.

NOTE: *Internal audit findings from previous audits that were identified again in the 2019 audits may not be noted in the list below, as corrective action activities are already in progress and the required records have already been opened in EtQ.*

Table 3: Summary of Findings – 2019 Internal Audit

Type	Details	Number
Element 1: Operational Plan		
C	No findings identified	---
Element 2: QMS Policy		
C	No findings identified	---
Element 3: Commitment and Endorsement		
C	No findings identified	---
Element 4: QMS Representative		
OFI	Legislative changes are communicated by email and within SOPs, but no formal procedure exists to document the communication process. Consider documenting the process as a controlled procedure.	2019-030-Audit Internal
Element 5: Document and Records Control		
NC	***Document and Records Control (QMS-WW-ALL-P-050, rev1, 30Sep2019)*** identifies Operator certifications as controlled records and specifies that they are to be posted at "respective WWTPs". Auditors observed posted certificates at Area 2 facilities and identified several issues: • Certificates for Tyler Mook (Class 2 Operator, Welland WWTP) not posted at Welland WWTP; • Certificates for Kristel Stevenson (Class 4 Operator, Area 2 Wastewater Operations Supervisor) not posted at Welland or Seaway WWTP;	WWCAR-19-001

Type	Details	Number
	• Certificates for Lovedeep Singh Multani (Operator-in-Training, currently working at Seaway WWTP) not posted at Seaway WWTP.	
NC	***Document Control (QMS-WW-ALL-P-050, rev1, 30Sep2019)*** specifies that only current documentation should be available for use. There were several outdated documents found at Baker Road WWTP: • Informal, unapproved contact lists were found on the control room bulletin board; • ***Water and Wastewater Emergency Contact List (ERP-ALL-ALL-T-002)*** – 2018 version found in control room, current version is rev14 (30Sep2019); • Uncontrolled, hand-edited pump station sheets were located in a binder in the control room.	WWCAR-19-002
NC	***Document Control (QMS-WW-ALL-P-050, rev1, 30Sep2019)*** specifies that only current documentation should be available for use. There were several outdated documents found at the Welland and Seaway WWTPs. Welland WWTP: • ***Bulk Chemical Deliveries (OP-ALL-ALL-P-001)*** – rev5 found in Emergency Response Plan binder in control room, current version is rev7; • ***Threat to a Water or Wastewater Facility, System, or Supply (ERP-ALL-ALL-T-002)*** – rev1 found in Emergency Response Plan binder in control room, current version is rev2; • Several obsolete Water Operations procedures were found in the Emergency Response Plan binder in the control room, including ***Watermain Break***, ***Watermain Shutdown and Break Repair***, ***Confirmed Adverse Drinking Water Quality Results***, ***Emergency Laboratory Services for Non-Bacteriological Sampling***, and ***Initial Response to an Adverse Water Quality Result***; • An obsolete "Spill Reporting" binder was found on the shelf in the control room; it contained outdated, uncontrolled and unapproved response instructions and outdated manager contact information.	WWCAR-19-003

Type	Details	Number
	Seaway WWTP: • ***Seaway WWTP Process Schematic (QMS-WW-SW-V-060)*** – rev2 found in control room, current version is rev3; • ***Bypass, Overflow, and Spill Notification and Reporting (OP-WW-ALL-P-038)*** – rev0 found in control room, current version is rev2; • ***Personnel Coverage (QMS-WW-ALL-P-110)*** – rev1 found in control room, current version is rev2; • ***Seaway WWTP System Schematic (QMS-WW-SW-V-061)*** – rev5 found in control room, current version is rev6; • ***Water and Wastewater Emergency Contact List (ERP-ALL-ALL-T-002)*** – 22Mar2016 version found in control room, current version is rev14 (30Sep2019); • ***WWTP Logbook Entries and Review (OP-WW-ALL-P-024)*** – rev0 found in control room, current version is rev1; • ***Maintenance After-Hours Call-In Process – Additional Support (Wastewater) (OP-WW-ALL-V-002)*** – copy posted on wall in control room has been trimmed to remove document control information; • ***Complaints – Wastewater (OP-WW-ALL-P-005)*** – rev3 found in control room, current version is rev4.	
NC	***Bypass, Spill, and Overflow Notification and Reporting (OP-WW-ALL-P-038, rev2, 1Mar2018)*** outlines the processes in place for addressing, reporting, and communicating bypasses, planned and unplanned spills, and overflows. Deficiencies were identified with the documented procedure as follows: • Section 5.2.2 of the procedure specifies that the Incident Manager is required to provide a spill report to MECP and ECCC within 10 working days of the event. In practice, a request can be placed with MECP to extend the 10-day deadline to accommodate additional activities (e.g., debriefs, etc.). • The procedure does not outline how the Wastewater Compliance Technologist is made aware of planned and unplanned spills. • Section 5 of the procedure states that samples are required to be collected for all planned and unplanned bypasses, spills, and overflows. Samples were not collected for the ferric spills at Niagara Falls WWTP or for	WWCAR-19-004

Type	Details	Number
	the planned biogas spill at Seaway WWTP. Additionally, operators at Niagara Falls WWTP do not collect bypass samples at remote stations. • Consider clarifying in Sections 5.1.2 and 5.2.1 that SAC s notified via telephone and Public Health is notified via email. • Consider clarifying the conditions under which a spill does or does not need to be reported, or refer to other SOPs where this is identified. • Consider creating a controlled checklist for responding to bypass, overflow, or spill events.	
NC	The requirements of ***Clean-Up of Sewage Spills (OP-WW-ALL-P-004, rev4, 13Oct2016)*** do not align with the requirements outlined in ***Bypass, Spill, and Overflow Notification and Reporting (OP-WW-ALL-P-038, rev2, 1Mar2018)***, and in some cases are contradictory.	WWCAR-19-005
NC	***Mandatory Training (QMS-WW-ALL-100, rev0, 7Feb2014)*** identifies the ***Mandatory Training Table (QMS-WW-ALL-101)*** 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 ***Competencies Table (QMS-ALL-ALL-T-100, rev7, 26Jul2018)***.	WWCAR-19-006
NC	***Essential Supplies and Services (QMS-WW-ALL-130, rev2, 2Mar2015)*** specifies that "a list of all the essential supplies and services associated with operational functions are listed in…the ***Essential Supplies & Services Table (QMS-WW-ALL-131)***". This reference is outdated, as the Essential Supplies and Services Table is now available as an electronic Vine page.	WWCAR-19-007
OFI	Consider removing specific details of spill reporting processes from ***Trunk Sewer or Forcemain Break Investigation and Repair (OP-WW-ALL-P-017, rev1, 16Dec2016)*** and instead include a reference out to ***Bypass, Overflow and Spill Notification and Reporting (OP-WW-ALL-P-038)***.	2019-031-Audit Internal
OFI	An auditee at the Welland WWTP noted that there were staffing shortages on 8Sep2019 that required him to assume care and control of Seaway WWTP and Crystal Beach WWTP and operate all three plants from the Welland WWTP. A review of logbook entries and access control showed that	2019-032-Audit Internal

Type	Details	Number
	the auditee does not have access to update the logbooks for the Seaway and Crystal Beach WWTPs. It may be beneficial to ensure that all WWTP Operators within each area have access to logbooks for the facilities over which they may be asked to assume care and control.	
OFI	An auditee at the Welland WWTP 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.	2019-033-Audit Internal
OFI	Several recommendations for improvement were received from auditees relating to controlled QMS document formatting and access: • Consider creating a link to the Essential Supplies and Services page in a more conspicuous location on Vine. • Consider including links to relevant ECAs on each of the area e-boards. • Reorganize the "Contractors" section of the ***Emergency Response Plan Contact List (ERP-ALL-ALL-T-002, rev14, 30Sep2019)*** to more clearly identify the types of services provided by each contractor.	2019-034-Audit Internal
OFI	Several recommendations for improvement were received from auditees relating to controlled record access: • Advise Operations and Maintenance Managers of where debrief records are stored, how they can be accessed, and what supporting information should be stored with the debrief record. • Provide Operators with access to spill reports.	2019-035-Audit Internal
OFI	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.	2019-036-Audit Internal
OFI	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 the L: drive. T may be beneficial to include these procedures within the controlled document structure in EtQ.	2019-037-Audit Internal

Type	Details	Number
Element 6: Wastewater System		
C	No findings identified.	---
Element 7: Risk Assessment		
OFI	***Wastewater System Risk Assessment (QMS-WW-ALL-P-070, rev2, 7Feb2019)*** 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 (WW) for the 2019 review. The procedure should be revised to reflect this change in process ownership.	2019-038-Audit Internal
Element 8: Risk Assessment Outcomes		
Not applicable		
Element 9: Organizational Structure, Roles, Responsibilities & Authorities		
NC	The ***Wastewater QMS Operational Plan (QMS-WW-ALL-MAN-010, rev2, 28Mar2019)*** 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.	WWCAR-19-008
Element 10: Competencies		
NC	The ***Competencies Table (QMS-ALL-ALL-T-100, rev7, 26Jul2018)*** 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.	WWCAR-19-009
OFI	Almost all auditees brought up in discussion that onboarding is less than desirable: • The process for SOP retrieval is 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.	2019-039-Audit Internal
OFI	There is an opportunity to provide additional training for Operations staff on key bypass, spill, and overflow concepts, including:	2019-040-Audit Internal

Type	Details	Number
	• Definitions of key terms (planned spill, unplanned spill, planned bypass, 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"); • Reinforcement of reporting requirements and protocols.	
OFI	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.	2019-041-Audit Internal
Element 11: Personnel Coverage		
NC	Call-In and Overtime Management (OP-ALL-ALL-P-003, rev3, 11Jun2019) 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 complete these call-ins in the past.	WWCAR-19-010
OFI	Operations Management may wish to consider overlapping Operator shifts by 30min to ensure that there is adequate opportunity for proper communication at shift change.	2019-042-Audit Internal
OFI	***Personnel Coverage (QMS-WW-ALL-P-110, rev2, 26Jul2018)*** states that "Sectional Management Teams review personnel coverage semi-annually so that any staffing-related concerns and recommendations can be put forward to Top Management as part of the Management Review. Based on the results of the review, Top Management may recommend seeking budget increases if more personnel are required." Workforce planning is not currently completed in an all-encompassing manner on a semi-annual basis through Management Review; rather, it is completed as part of the annual budgeting process.	2019-043-Audit Internal
Element 12: Communications		
NC	***Communications (QMS-WW-ALL-P-120, rev1, 25Aug2017)*** 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.	WWCAR-19-011
NC	MECP authorized a planned spill of digester gas at the Seaway WWTP to begin on or after 25Apr2019; the MECP authorization included a request that the spill be reported to	WWCAR-19-012

Type	Details	Number
	SAC at time of occurrence. Logbook records for Seaway WWTP 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 SAC to notify them of the spill.	
Element 13: Essential Supplies and Services		
NC	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.	WWCAR-19-013
NC	***Communications (QMS-WW-ALL-P-120, rev1, 25Aug2017)*** 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 PO on an annual basis currently open to ClearTech until 2020. There is no evidence that information about the Region's QMS was provided to ClearTech, whether in scoping documentation or otherwise.	WWCAR-19-014
OFI	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.).	2019-044-Audit Internal
Element 14: Review and Provision of Infrastructure		
C	No findings identified.	---
Element 15: Infrastructure Maintenance, Rehabilitation and Renewal		
NC	***Trunk Sewer or Forcemain Break Investigation and Repair (OP-WW-ALL-P-017, rev1, 16Dec2016)*** 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.	WWCAR-19-015

Type	Details	Number
NC	***Trunk Sewer or Forcemain Break Investigation and Repair (OP-WW-ALL-P-017, rev1, 16Dec2016)*** states that "Wastewater System Failure Reports are required as part of wastewater system inspections" and that GroupEAM opens these reports upon receipt of break site GIS coordinates from the field. The failure reports are used to establish break frequency and forcemain condition rating, which are in turn used as input to capital planning. EAM shows records of a forcemain break in the area of the South Side Low Lift SPS (Niagara Falls) in May 2018. The forcemain break was recorded using a regular work order, and not a Wastewater System Failure Report as required. (NOTE: since identifying this non-conformance, a failure report has been initiated.)	WWCAR-19-016
OFI	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. SPS; w/o #594592, effluent forcemain break at Port Dalhousie WWTP).	2019-045-Audit Internal
OFI	Where planned spills are required in order to complete maintenance work (e.g., planned spill of digester gas at Seaway WWTP), there is an opportunity to streamline recordkeeping by linking associated EAM work order records with the corresponding EtQ spill reporting records.	2019-046-Audit Internal
OFI	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 EAM permissions and/or create workflows to define how these work orders can be forwarded in the Operations Manager's absence (e.g., vacation, illness, etc.). At present, the work orders will remain in the Operations Manager's EAM inbox until his return to work.	2019-047-Audit Internal
OFI	It may be beneficial to clarify the process for introducing new assets and instrumentation into EAM, including: • Responsibilities for provision of asset information to GroupEAM; • Asset information that must be provided; • Asset documentation that must be provided;	2019-048-Audit Internal

Type	Details	Number
	• In the case of new instrumentation, any initial calibration reports and indication of the applicable calibration program for the subject asset; • How to ensure that the asset is appropriately inventoried and tagged.	
Element 16: Sampling, Testing and Monitoring		
NC	Area 3 Operations staff indicated that there are agreements/ requirements in place to contact affected Area Municipalities when wet wells at selected sewage pumping stations reach certain levels. This requirement was not noted in any controlled procedure reviewed by the auditors.	WWCAR-19-017
OFI	The chain of custody used for bypass sampling at Welland WWTP 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 Welland WWTP 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.	2019-049-Audit Internal
OFI	All WWTPs should work toward full implementation of laboratory waste management procedures ***(Transport, Storage and Disposal of Waste and Dangerous Goods, HS-ALL-ALL-P-037, rev0, 29Oct2018)***. At several plants (Welland WWTP, Seaway WWTP, Baker Road WWTP), 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 municipal garbage.	2019-050-Audit Internal
OFI	It may be beneficial for the Wastewater Compliance Technologist to include all in-plant process sampling on the WWTP-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.	2019-051-Audit Internal
OFI	It may be beneficial to consider the installation of a SCADA alarm at Port Dalhousie WWTP that would alert the WWTP 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,	2019-052-Audit Internal

Type	Details	Number
	and there is potential for it to be inadvertently opened and/or left in the open position for longer than required.	
OFI	It may be beneficial to investigate technologies that could flag for WWTP 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.	2019-053-Audit Internal
Element 17: Measurement/Recording Equipment Calibration and Maintenance		
NC	***Wastewater Calibration (QMS-WW-ALL-170, rev0, 25Jun2014)*** specifies that DO meters and ORP meters are calibrated annually. In practice, auditees indicated that DO and ORP are calibrated on an as-needed basis.	WWCAR-19-018
NC	Section 5.3 of ***Determination of pH and Temperature in Wastewater (OP-WW-ALL-P-007, rev3, 11Oct2017)*** 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.	WWCAR-19-019
NC	Several issues were identified in the plant laboratory at Welland WWTP: • The bench-top pH meter (Thermoscientific Orion Star AIII - serial #J17006, calibrated 16May2019) is not asset-tagged. • EAM records show that a HACH DR1900 spectrophotometer with serial #161060001002 is assigned to Welland WWTP. At the WWTP, a different HACH DR1900 unit is installed (serial #163370001002); this instrument is also missing an asset tag. • EAM records show that a HACH DR2800 spectrophotometer is assigned to Welland WWTP. This device was not found on the bench in the lab. • A Mettler scale (AE200, serial #F52464, calibrated 17May2019) is not asset-tagged or listed in EAM. • An expired bottle of Rochelle salt stabilizer for ammonia determination was found on the bench (expired Dec2018).	WWCAR-19-020

Type	Details	Number
	• An expired QC standard for total phosphorus was found on the bench (expired Jan2019). • The plant lab eyewash station does not have an inspection tag. Several issues were identified in the plant laboratory at Seaway WWTP: • The pH meter (VWR, serial #D00182, calibrated 16May2019) is not asset-tagged. • The HACH DR1900 spectrophotometer (serioal #161060001020, calibrated 16May2019) does not have an asset tag. • Expired blue pH buffer solution was found on the shelf (4Oct2019). • Expired sulfite reagent was found on the shelf (Aug2019).	
OFI	Auditees observed that there is inadequate instrumentation available for monitoring of wastewater remote stations, and that additional flow meters, pressure gauges, etc. would help WWTP Operators to be able to identify spills or forcemain breaks more readily.	2019-054-Audit Internal
OFI	New COD reactors were observed in the plant laboratories at both Port Dalhousie and Port Weller WWTPs. 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 EAM.	2019-055-Audit Internal
Element 18: Emergency Management		
NC	***Bypass, Overflow, and Spill Notification and Reporting (OP-WW-ALL-P-038, rev2, 1Mar2018)*** 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 MECP and ECCC. During the audit, auditors observed confusion regarding assignment of the Incident Manager role, including assignment of responsibilities for reporting the spill to SAC and for completing the spill report. As a result, spill reports are not consistently being prepared by the appropriate	WWCAR-19-021

Type	Details	Number
	manager (i.e., Operations or Maintenance, depending on the spill location).	
NC	***Post-Event Debriefing (ADM-ALL-ALL-P-009, rev2, 11Jul2017)*** 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).	WWCAR-19-022
OFI	There is an opportunity to improve spill protection at Port Dalhousie WWTP by making spill mats available in the chemical delivery areas and enforcing their use.	2019-056-Audit Internal
OFI	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.	2019-057-Audit Internal
Element 19: Internal Audit		
C	No findings identified.	---
Element 20: Management Review		
C	No findings identified.	---
Element 21: Continual Improvement		
NC	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. ***Wastewater Corrective Action (QMS-WW-ALL-210, rev0, 30Oct2013)*** states that preliminary corrective action information is entered into the record, and then "the Lead Auditor assigns the CAR 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.	WWCAR-19-023
OFI	***Post-Event Debriefing (ADM-ALL-ALL-P-009, rev 2, 11Jul2017)*** 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-	2019-058-Audit Internal

Type	Details	Number
	ALL-P-210 for wastewater)". Consider revising ***Wastewater Corrective Action (QMS-WW-ALL-210, rev0, 30Oct2013)*** to include roles and responsibilities for corrective action assignment when non-conformances/action items are identified outside of internal audits.	

3.0 QUESTIONS AND CONCERNS

Please contact Rachel Whyte, W-WW Quality Management Specialist, x3787, to discuss any questions or concerns about the audit findings.