

## **INTERNAL AUDIT REPORT**

**Competencies and Training**

**Top Management Communication**

**Capital Project Implementation  
and Hand-Off**

**General**

# **Niagara Region All Drinking Water Systems Internal Audit**

Operations  
Top Management  
Maintenance  
QMS Representative  
Support Staff

**March 2 – 12, 2020**

---

## 1.0 INTRODUCTION

### 1.1 Purpose

The 2020 internal audit was undertaken:

- To verify the continued conformance of the Water-Wastewater (W-WW) Division's Water QMS (Quality Management System) with the requirements of the DWQMS (Drinking Water Quality Management Standard) and the Water QMS Operational Plan; and
- To verify the effective implementation and maintenance of the Water QMS for all five of Niagara Region's drinking water systems.

Audits were completed between March 2<sup>nd</sup> and 12<sup>th</sup>, 2020; **an additional remote audit was conducted in June 2020**. Audits were conducted at four water treatment plants (WTPs), including the Niagara Falls WTP (Area 1), the Welland WTP (Area 2), and the DeCew Falls and Grimsby WTPs (Area 3). Internal audits were also conducted with members of Top Management and with staff of the W-WW Integrated Systems, W-WW Engineering, and W-WW Asset Management groups.

**NOTE: This audit report was amended in July 2020 to capture an additional audit conducted for Element 8 – Risk Assessment Outcomes. The amendments are identified in red font throughout the report.**

### 1.2 Scope

The 2020 internal audit was conducted as a process audit; in this type of audit, auditors examine the elements of the DWQMS as they relate to a selected process. The processes selected to be audited included:

- Competencies and training;
- Top Management communication;
- Capital project implementation and hand-off; and
- General elements not otherwise covered.

The following elements were examined as part of this internal audit:

- Element 1 – Quality Management System
- Element 2 – Quality Management Policy

- Element 4 – QMS Representative
- Element 5 – Documents and Records Control
- Element 6 – Drinking Water System
- **Element 8 – Risk Assessment Outcomes (audited June 2020)**
- Element 9 – Organizational Structure, Roles, Responsibilities and Authorities
- Element 10 – Competencies
- Element 11 – Personnel Coverage
- Element 12 – Communications
- Element 13 – Essential Supplies and Services
- Element 14 – Review and Provision of Infrastructure
- Element 15 – Infrastructure Maintenance, Rehabilitation and Renewal
- Element 16 – Sampling, Testing and Monitoring
- Element 17 – Measurement & Recording Equipment Calibration and Maintenance
- Element 20 – Management Review
- Element 21 – Continual Improvement

Elements 3 (Commitment and Endorsement), 7 (Risk Assessment), 18 (Emergency Management), and 19 (Internal Audits) were not audited during the 2020 internal audit. These elements will be included in future internal audits.

### 1.3 Selection of Internal Audit Team

Internal auditors for the 2020 audit were:

- **Area 1:** Dawn MacArthur, Rhonda McCabe
- **Area 2:** Rachel Whyte, Andrew Braham
- **Area 3:** Deanna Barrow, Michelle Max
- **General Elements:** Jen Croswell, Janet Rose, Rachel Whyte
- **Risk Assessment Outcomes:** Rachel Whyte

All internal auditors have completed Internal Auditor Training as required by the ***Internal Audit Procedure*** (QMS-WT-ALL-P-190, rev9, effective 3Feb2020).

### 1.4 Criteria and Methodology

Audit criteria included the following:

- ***Internal Audit Procedure*** (QMS-WT-ALL-P-190, rev9, effective 3Feb2020);
- ***Niagara Region Water Operational Plan*** (QMS-WT-ALL-MAN-010, rev9, effective 12Dec2019) and supporting procedures; and
- Internal audit training materials (various auditor training courses).



Audits were conducted by assigned auditors as noted in Section 1.3 of this report. Selected members of Top Management and other support staff were also interviewed by assigned auditors. An opening meeting was held at each of the audit interviews. Auditor checklists were completed and reviewed with the Lead Auditor. These checklists are not attached to this audit report, but are retained as per **Document & Records Control** (QMS-WT-ALL-P-050, rev8, effective 6Jan2020).

## 1.5 Summary of New Internal Audit Findings

Findings are categorized as follows and are summarized in Table 1 below.

- **Non-conformance:** A requirement of the Drinking Water Quality Management Standard or a documented Standard Operating Procedure is not being met. These findings require **corrective action**.
- **Potential non-conformance:** A non-conformance has not yet occurred, but a trend or pattern indicates that occurrence of a non-conformance is likely. These findings require **preventive action**.
- **Best practice for evaluation:** A best practice behaviour or opportunity for improvement is identified. These findings are brought forward to the appropriate level of management for review and consideration, and those requiring Top Management direction or input are reviewed at the annual Management Review.

**Table 1: Summary of Internal Audit Findings – Number and Type**

Element	NC	PNC	BP	Total
Document and Records Control (5)	4	1	1	6
Drinking Water System (6)			1	1
Risk Assessment Outcomes (8)	2		1	3
Org Structure, Roles, Responsibilities, and Authorities (9)		1		1
Competencies (10)	1	1	2	4
Communications (12)			2	2
Review and Provision of Infrastructure (14)	3	4	3	10
Infrastructure Maintenance, Rehab, and Renewal (15)			3	3
Continual Improvement (21)			1	1
<b>Total</b>	<b>10</b>	<b>7</b>	<b>14</b>	<b>31</b>

Details of all findings are provided in Table 2 (see Section 1.8 of this Audit Report).



## 1.6 Review of Previous Internal Audit Findings

No previous audit findings were reviewed during this internal audit, as much work was done in advance of the internal audits to address and close open corrective actions from the previous internal audit in 2019. These efforts were summarized in a memo to Public Works Committee ([PWC-C 8-2020, 10March2020](#)).

## 1.7 Review of Previous External Audit Findings

No findings were identified in the 2019 external audit.

### Internal Audit Results

## 1.8 Summary of QMS Internal Audit Findings

Table 2 provides a summary of findings from the QMS Internal Audit. In reviewing Table 2, the following acronyms should be noted:

Acronym	Definition
<b>C</b>	Conformance
<b>NC</b>	Non-Conformance
<b>PNC</b>	Potential Non-Conformance
<b>BP</b>	Best Practice for Evaluation
<b>N/A</b>	Not applicable – did not audit this element

Table 2 is provided below.

**Table 2: Summary of Findings – 2020 Internal Audit**

Element #	Finding	DWQMS Standard Element	Number
1	C	QMS conforms to the requirements of this element.	
2	C	QMS conforms to the requirements of this element.	
3	N/A	<i>Not reviewed during this internal audit.</i>	
4	C	QMS conforms to the requirements of this element.	
5	NC	<b>Document and Records Control (QMS-WT-ALL-P-050, rev8, 6Jan2020)</b> specifies retention locations and times for key drinking water system records. The procedure does not include direction for retention of capital project records.	<a href="#">WTCAR-20-001</a>
5	NC	The external-facing Niagara Region website contains a link to access the corporate <b>Contractor Safety Program (C3-H17, 1Sep2013)</b> . However, the internal corporate policy library includes an updated version of <b>Contractor Safety Program (C-HS-001-002, 8Oct2019)</b> that is not accessible to contractors.	<a href="#">WTCAR-20-002</a>
5	NC	Section 5.5.3 of <b>Document and Records Control (QMS-WT-ALL-P-050, rev8, 6Jan2020)</b> specifies that “controlled printed documents that are obsolete are removed from use and replaced with the current printed version”. Auditors examined printed Emergency Response Plans at Welland WTP, Decew WTP, and Grimsby WTP, and a significant number of these binders were found to have obsolete copies of the <b>Emergency Contact List (ERP-ALL-ALL-T-002, rev17, 21Feb2020)</b> .	<a href="#">WTCAR-20-003</a>

Element #	Finding	DWQMS Standard Element	Number
5	NC	Section 5.4.2 of <b>Document and Records Control (QMS-WT-ALL-P-050, rev8, 6Jan2020)</b> specifies that “the majority of QMS documents are typically reviewed every three years unless otherwise indicated in the document header”. No evidence was found to support this statement.	<a href="#">WTCAR-20-004</a>
5	PNC	A directive was issued from the AD, Engineering to all Senior Project Managers and Project Managers to update the Project List on Vine at least once monthly. Many records in the Project List are missing key information (project numbers, contract numbers, etc.) and are not populated with current information. No formal procedure exists to document the use and maintenance of the Project List; at present, it is expected that Senior Project Managers remember to communicate this requirement to new Project Managers.	<a href="#">2020-001-Audit Internal</a>
5	BP	All controlled procedures include a reference to <b>Personal Protective Equipment (HS-ALL-ALL-P-029)</b> ; however, the document link does not work. It may be beneficial to update <b>Personal Protective Equipment (HS-ALL-ALL-P-029)</b> in EtQ to render these links functional.	<a href="#">2020-002-Audit Internal</a>
6	BP	The Operating Authority may wish to add process control narratives (PCNs) to the list of project deliverables identified in <b>Approvals and Change Management for Infrastructure Changes in a Drinking Water System (rev5, 28Feb2020)</b> . While PCNs are not explicitly required by legislation, in general, they help to satisfy the requirement to document drinking water system operation as required by Schedule B, Section 16, of the Municipal Drinking Water Licence. PCNs can also form part of each system’s QMS drinking water system description.	<a href="#">2020-003-Audit Internal</a>
7	N/A	<i>Not reviewed during this internal audit.</i>	---



Element #	Finding	DWQMS Standard Element	Number
8	NC	<b>Drinking Water System Risk Assessment (QMS-WT-ALL-P-070, rev9, 5Feb2020)</b> specifies that risk action items/plans must be initiated for any risks with scores of 15 or greater. Risk action items/plans were not initiated in EtQ for high-scoring risks from the 2020 assessment reviews.	<a href="#">WTCAR-20-009</a>
8	NC	<b>Tracking Critical Control Limit Deviations (OP-WT-ALL-P-028, rev2, 24Oct2019)</b> specifies requirements for logging details of CCL alarms in SCADA. The SCADA log for the high turbidity alarm at Filter 5300 on 31Oct2019 does not include any comments.	<a href="#">WTCAR-20-010</a>
8	BP	<b>CCP - Filter Effluent Turbidity (OP-WT-ALL-P-008, rev8, 21Apr2020)</b> does not include a reference to <b>Tracking Critical Control Limit Deviations (OP-WT-ALL-P-028, rev2, 24Oct2019)</b> . This reference should be included in order to create a linkage between the two processes.	<a href="#">2020-021-Audit Internal</a>
9	PNC	There is an opportunity to establish a process for notifying key stakeholders when new positions are created within the Division so that key documents (e.g., Operational Plan, Competencies Table, etc.) and key systems (e.g., myLearning, EtQ, etc.) can be updated. As an example, the new Project Coordinator position is not listed in the Operational Plan or the Competencies Table.	<a href="#">2020-004-Audit Internal</a>
10	NC	<b>“MOECC Operator Certificate/Licence Renewal Monitoring and Notification” (ADM-WWW-ALL-P-001, rev6, 2Aug2017)</b> does not reflect current practice. The use of automated PeopleSoft reminders/flags is not captured in the procedure.	<a href="#">WTCAR-20-005</a>



Element #	Finding	DWQMS Standard Element	Number
10	PNC	<b>Review and Revision of Water Operations Manuals (rev0, 11Jun2019)</b> was created to define responsibilities and processes for water operations manuals. The Engineering auditee was not aware of this procedure.	<a href="#">2020-005-Audit Internal</a>
10	BP	There is an opportunity to reference <b>“MOECC Operator Certificate/Licence Renewal Monitoring and Notification” (ADM-WWW-ALL-P-001, rev6, 2Aug2017)</b> in “Competencies” (QMS-WT-ALL-P-100, rev6, 19Sep2016) to ensure that the critical certificate renewal process is captured within the competencies program documentation.	<a href="#">2020-006-Audit Internal</a>
10	BP	It is recommended that key conference dates (i.e., SCOWWA, OWWA, WEAO) be considered when scheduling training courses for staff.	<a href="#">2020-007-Audit Internal</a>
11	C	QMS conforms to the requirements of this element.	---
12	BP	Consider formalizing the administration and use of ThinkTank in a controlled procedure. Procedure to include details of how suggestions are received and routed to the appropriate subject matter expert, how suggestions are evaluated, and how responses are posted.	<a href="#">2020-008-Audit Internal</a>
12	BP	It may be beneficial to expand the scope of information shared via the Project List on Vine. At present, there is no common location for project files (e.g., RFP, design drawings, etc.) that project stakeholders can access easily. These documents are stored in engineering project folders, and there may be risk in directing stakeholders to these directories. The Engineering group may wish to consider adding additional fields to the Project List pages to include links to the RFP, design drawings, commissioning plans, etc.	<a href="#">2020-009-Audit Internal</a>
13	C	QMS conforms to the requirements of this element.	---



Element #	Finding	DWQMS Standard Element	Number
14	NC	<p><b><i>Approvals and Change Management for Infrastructure Changes in a Drinking Water System (rev5, 28Feb2020)</i></b> specifies the following due dates for deliverables:</p> <ul style="list-style-type: none"> <li>- Relevant Operations Manuals must be updated within 6 months of placing infrastructure in service;</li> <li>- New asset information must be uploaded to EAM upon the in-service date;</li> <li>- As-built drawings and record drawings must be provided within 12 months of the in-service date.</li> </ul> <p>Upgrades to the Kent Avenue Reservoir were completed in August 2018.</p> <ul style="list-style-type: none"> <li>- The corresponding Operations Manual section (<b><i>Niagara Falls WTP - E.30 - Storage &amp; Transmission - Off-Site Storage, OP-WT-NF-MAN-E.30, rev3, 26Sep2017</i></b>) has not been updated to reflect the changes in operation.</li> <li>- The project contractor provided X28 asset information to Group EAM, but this information was not uploaded accordingly.</li> <li>- As-built drawings for the project are available electronically in DMD, but are not available in print at the Niagara Falls WTP.</li> </ul>	<a href="#"><u>WTCAR-20-006</u></a>



Element #	Finding	DWQMS Standard Element	Number
14	NC	<b><i>Approvals and Change Management for Infrastructure Changes in a Drinking Water System (rev5, 28Feb2020)</i></b> specifies that new asset information must be uploaded to EAM upon the in-service date. The King Street Elevated Tank decommissioning is complete and the project is in warranty phase, however, there were 11 assets remaining in EAM for this project. Additionally, the procedure focuses on addition of new assets, but equally important is the removal of existing assets that are no longer installed. It may be beneficial to modify the wording of the subject procedure to reflect this.	<a href="#"><u>WTCAR-20-007</u></a>
14	NC	Contractor specifications for Section 3.1 of the <b><i>Water Treatment Filter Media</i></b> contract document (GAC replacement) states that "the Engineer/Owner will collect GAC samples and provide these to the suppliers for performance testing". One of these samples was due to be collected at Decew Falls WTP in late 2019. No evidence was provided to indicate that this sample was collected and submitted to the supplier.	<a href="#"><u>WTCAR-20-008</u></a>

Element #	Finding	DWQMS Standard Element	Number
14	PNC	<p>There is an opportunity to clarify responsibilities for staff training in capital projects, specifically, whether these responsibilities fall to the consultant or the contractor. Auditors reviewed the <b><i>W-WW RFP Template (ENG-PM-ALL-F-003, rev9, 14Nov2019)</i></b> outlining consultant deliverables and the <b><i>Niagara Peninsula Standard Contract Document – Front-End Template (ENG-STD-ALL-F-001, rev12, 24Jan2020)</i></b> outlining contractor deliverables and did not find evidence that responsibilities for staff training on new infrastructure are clearly assigned in either document.</p> <p>Additionally, there is an opportunity to clarify responsibilities for the development of preventive maintenance schedules in <b><i>W-WW RFP Template (ENG-PM-ALL-F-003, rev9, 14Nov2019)</i></b> and/or <b><i>Niagara Peninsula Standard Contract Document – Front-End Template (ENG-STD-ALL-F-001, rev12, 24Jan2020)</i></b>. There are compliance implications if maintenance activities and calibrations that are required by regulation are not scheduled appropriately in EAM and completed on time in the field.</p>	<a href="#">2020-010-Audit Internal</a>
14	PNC	<p><b><i>“Approvals and Change Management for Infrastructure Changes in a Drinking Water System” (rev5, 28Feb2020)</i></b> outlines processes for identifying the types of regulatory approvals required for a project. These approval requirements are established at the beginning of a project. As a project progresses, any changes in scope may impact the project’s approval requirements. There is a potential for non-compliance issues if projects are not re-evaluated when scopes change. It may be beneficial for the Operating Authority to establish a process for this.</p>	<a href="#">2020-011-Audit Internal</a>

Element #	Finding	DWQMS Standard Element	Number
14	PNC	The 10-Year Capital Forecast is updated annually and provides an overview of planned capital works. In an ideal year, every project that is planned for the year is initiated on schedule; however, it happens often that planned projects are bumped or delayed. The auditors found evidence that new projects in a current year are sometimes initiated before the deferred ones from previous years are initiated.	<a href="#">2020-012-Audit Internal</a>
14	PNC	The auditors found a memo on the Vine Divisional Memorandum Search page titled <b>Clarification on Repair Responsibilities – Doors, Locks, Fence and Security Systems (MEMO-180419)</b> . The memo divides labour for maintenance and renewal of security infrastructure. It may be beneficial to formalize the contents of this memo in a controlled procedure.	<a href="#">2020-013-Audit Internal</a>
14	BP	There is an opportunity for Engineering Project Managers to communicate capital project timelines more clearly and consistently, and in a format that all stakeholders can access.	<a href="#">2020-014-Audit Internal</a>
14	BP	There is an opportunity to more clearly define ownership and assignment of PIRs and identify who is following up on open requests.	<a href="#">2020-015-Audit Internal</a>

Element #	Finding	DWQMS Standard Element	Number
14	BP	It may be beneficial to examine current expectations for upload of asset information as phases of capital projects are completed. At present, the expectation is that asset information be uploaded to EAM upon the in-service date of the full project; this often means that all asset data is provided at once at the end of a project. In reality, some assets are brought online as the project progresses, and these assets may come due for preventive maintenance/calibration before the project is complete. However, this work cannot be planned and scheduled in EAM if the assets have not been added.	<a href="#">2020-016-Audit Internal</a>
15	BP	It may be beneficial to develop a documented procedure (or procedures) that outlines the key steps in project implementation and delivery, including but not limited to: <ul style="list-style-type: none"> <li>- Responsibilities and process for RFP and tender development;</li> <li>- Communication requirements over the course of the project;</li> <li>- Typical project milestones, including situations where Operations may require deliverables in advance of legislated due dates;</li> <li>- Development of preventive maintenance schedules for new assets, including roles and responsibilities, requirements, timelines, and submission requirements;</li> <li>- Roles, responsibilities, training, and other activities involved in handing over completed projects to Water Operations, and any forms and templates that may be required.</li> </ul>	<a href="#">2020-017-Audit Internal</a>



Element #	Finding	DWQMS Standard Element	Number
15	BP	It may be beneficial to require Engineering Project Managers to provide capital project contractors with a list of current assets in the area of the planned capital work so that they can identify, with more certainty, the assets that are removed during construction.	<a href="#">2020-018-Audit Internal</a>
15	BP	It may be beneficial to include GAC as an asset in EAM so that relevant specifications, lifecycle history, and other information can be properly tracked.	<a href="#">2020-019-Audit Internal</a>
16	C	QMS conforms to the requirements of this element.	---
17	C	QMS conforms to the requirements of this element.	---
18	N/A	<i>Not reviewed during this internal audit.</i>	---
19	N/A	<i>Not reviewed during this internal audit.</i>	---
20	C	QMS conforms to the requirements of this element.	---
21	BP	There is an opportunity to define a process for communicating the outcomes of non-conformances, potential non-conformances, and opportunities for improvement to staff, and to apply this process consistently.	<a href="#">2020-020-Audit Internal</a>

Prepared by: Rachel Whyte

Date: July 16, 2020 (rev1)