

DWQMS 2.0

Internal Audit Report

For the period of:

September 9, 2020 to September 7, 2021

For:

Municipality of Middlesex Centre

Middlesex Centre's Water & Wastewater Operations

Middlesex Centre Distribution System
Melrose Well Supply System
Birr Well Supply System

Conducted by:



Audit dates: September 6-7, 2021

1.0 Overview & Objectives

Acclaims Environmental Inc. was retained to conduct an internal audit of the Municipality of Middlesex Centre's quality management system (QMS) on September 6-7, 2021 to determine whether it conforms to the requirements of the DWQMS 2.0; and to assess whether the QMS is effectively implemented.

This report summarizes the audit results in section 2.0 Audit Findings, categorizing positive findings, non-conformities and opportunities for improvement.

1.1 Risks and Opportunities

The risk-based approach was used in conducting this audit; which considers risks and opportunities to ensure that the audit focuses on matters that are significant for the auditee and for achieving the audit program objectives.

Potential risks can include those related to *ineffective*: planning / identification of external and internal issues; resources; audit team; communication; audit program implementation / monitoring / improvement; control of documented information; and availability of auditee and/or evidence.

Opportunities can include *efficiencies* such as: allowing multiple audits to be conducted in a single visit; minimizing time and distances travelling to sites; matching competencies of audit team to competencies needed; and aligning audit dates with the availability of auditee's staff.

1.2 Scope

The internal audit was performed at Municipality of Middlesex Centre located at 10227 Ilderton Road, R.R.#2 Ilderton.

Operational Plan for Municipality of Middlesex Centre was reviewed entirely for conformity to DWQMS 2.0. This audit also reviewed the Municipality of Middlesex Centre's planned processes and programs to evaluate how well QMS requirements are integrated into them.

Process audits examine the resources (equipment, materials and people) used to transform the inputs into outputs, the methods (procedures and instructions) followed, and the measures collected to determine process performance. Process audits check the adequacy and effectiveness of the process controls established by procedures, work instructions, training and process specifications.

As the last internal audit was conducted on September 8, 2020, this audit focused on the period between September 9, 2020 and September 7, 2021.

1.3 Methodology

The audit was conducted in accordance with ISO 19011:2018 – Guidelines for auditing management systems.

The list of all auditing criteria is included in Appendix "A" – Audit Plan. Appendix "B" – Interviews, Documents and Records lists persons interviewed, along with documents and processes reviewed. Appendix "C" – Audit Checklists includes the checklists used to conduct the audit.

In order to conduct audits within scope, time and budgetary constraints, audit evidence is based on a sampling of processes, programs, and information available. The size of the sample selected is appropriate to the size and scale of the operation and information available. Objective evidence collected is based upon the sampling.

The conclusions presented in this report are based on information presented during the internal audit.

1.4 Audit Program Monitoring and Reviewing

The implementation of the audit program was monitored and, at appropriate intervals, reviewed to assess whether the objectives have been met and to identify opportunities for improvement. The results of this review will be included in this report, if applicable.

Performance indicators were used to monitor characteristics such as:

- conformity with the audit program, schedules and audit objectives,
- the ability to implement the audit plan,
- feedback from top management, auditees, auditors and other interested parties, and
- adequacy of documented information in the whole audit process.

The audit program review considered:

- a) results and trends from monitoring,
- b) conformity with procedures,
- c) evolving needs and expectations of relevant interested parties,
- d) audit program records,
- e) alternative or new auditing methods / practices,
- f) effectiveness of the actions to address the risks and opportunities, and internal and external issues associated with the audit program, and
- g) confidentiality and information security issues relating to the audit program.

Corrective actions and opportunities for improvement from the results of audit program reviews, if any, are included in the internal audit report's section 2.0 Audit Findings.

1.5 Auditors

The Lead Auditor was Brigitte Roth, who has extensive auditing experience and is a certified auditor with the Environmental Careers Organization of Canada (ECO Canada). Janine DeBoer performed the on-site and desktop portions of the audit. Auditor qualifications are included in Appendix "D" – Auditor CV and Training Certificates.

1.6 Confidentiality

The information gathered by Acclaims Environmental Inc. is the property of the Municipality of Middlesex Centre only and will not be transmitted to any third party without the prior written consent of an authorized representative.

All documents provided by the organization prior to and during the assessment are kept only for the purpose of audit review and audit report preparation.

2.0 Audit Findings

2.1 Positive Findings

The following positive audit findings were noted during the audit:

Staff Engagement

- During all interviews it was evident that the staff enjoyed their jobs and there is a great work environment. All staff felt confident that they could discuss issues with their supervisors/co-workers

QMS Staffing

- Consideration is being given to change the QMS Rep to the Compliance Coordinator

Training Records

- Compliance 365 program has been implemented for tracking training hours which will help ensure staff get the required training each year

Work Order System

- Dude Solutions will be replacing JobCal for work orders. This will mean that paper copies will not have to be used in the future

Emergency Response Plans

- The ERP's are very thorough and contain a good cross section of information

Information Sharing

- Management meetings held every Tuesday with all Public Works. Good way to share information.

Work Planning

- Weekly work plan is sent out on Friday afternoon, operators like this

2.2 Non-Conformities

The following non-conformities were noted during the audit:

Element 5 – Document Control

The OP shall document a procedure for Document and Records control that describes how Documents required by QMS are kept current, legible and readily identifiable

- There are many instances where the Operational Plan contradicts the information in the QMS documents. (ie. ADMIN-700 and ADMIN-1200). There was a recent update to the Operational Plan that will lead to removing some of these documents and adding new documents.

Element 8 – Risk Assessment Outcomes

The risk assessment outcomes should list the critical control points and their respective critical control limits.

- The CCP chart in the Risk Assessment Outcomes report dated July 20, 2021 is not consistent with what is listed in the Operational Plan. Some items in the list are above the High limit of 9 with no reason given for not being a CCP.

2.3 Opportunities for Improvement

The following is a list of opportunities for improvement noted in conducting this audit:

Reference	Opportunity for Improvement – Description
Quality Policy	The link to the Quality Policy on the website is dated June 8, 2016 with reference that it is to be updated as required. The policy in the Operational Plan is slightly different than this. The Quality Management Policy referenced on the website should be removed or updated.
Quality Policy	One of the commitments in the Quality Policy in the Operational Plan is to comply with legislation and regulations. Should include 'applicable' in the commitment
Document List	Appendix A to the Operational Plan listed the Operational Plan but the revision date is incorrect. Listed as 2021-06-07.
Document List	Consider a master document list of all documents. Currently not all documents are tracked on the list in the Operational Plan
System Description	Schedule C – Director's Directions for Operational Plans (Subject System Description Form) is not completed properly. There should be individual forms for each system.
Risk Assessment Review	The Risk Assessment was discussed at Management review but was not reviewed. Consider a more thorough review at the Management Review meeting
Personnel Coverage	Consider removing the clause about the amendments to O. Reg. 128/04. This may cause issues if the changes don't occur
Essential Supplies	For the Essential Suppliers listed in the ERP in some instances there is only a contact name and no company listed. Consider listing the company in case the contact person leaves.
Sampling	ADMIN-1600 Sampling, Testing and Monitoring is missing a reference to HAA quarterly sampling
Calibration	In ADMIN-1700 Measurements and Recording Equipment, the calibration required for instruments that are part of CT calculations needs to be updated to match the new requirements in the MDWL.
Debrief Follow-up	Follow-up actions for the recommended actions in the debriefs could be tracked in the CAF/OFI/PAF Procedure
Emergency Plans	The 3 ERP's contain a lot of information that is duplicated. Consider consolidating the information into one ERP to simplify the updating process.

Reference	Opportunity for Improvement – Description
Internal Audit	Consider removing the three-year requirement that is listed for Internal Audits or ensure that there is a way to track this
Management Review	In ADMIN-2000 Management Review it refers to Efficacy of the Risk Assessment process. This should be changed to Effectiveness
Non-Compliance Tracking	Consider recording non-compliance and recommended actions from MECP inspections are tracked and recorded on the MC-CAF/OFI Log
Task Sheet	Daily task sheets being used have some revisions listed but not all charts have a date. Consider one revision date for each form

3.0 Conclusions

The results of the internal audit performed at the Municipality of Middlesex Centre for the Middlesex Centre Distribution System, Melrose Well Supply System and Birr Well Supply System confirm that the quality management system established is effective in conforming with the requirements of DWQMS 2.0.

While non-conformities and/or opportunities for improvement are cited in this audit report, they do not undermine the positive programs and attitudes already in place among Municipality of Middlesex Centre staff.



Brigitte Roth, BES, EP(EMSLA)



Janine DeBoer, Internal Auditor

Appendix “A” – Audit Plan

Internal Audit Start Date:				September 6, 2021							Internal Audit End Date:					September 7, 2021									
Date	Time	Auditor	Auditee	Process / Program	DWQMS Element – <u>Standard and version: DWQMS 2.0</u>																				
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
09/06	8:00 – 4:00	JD	Doc. Info.	Desktop review	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
09/07	8:00	JD	All	Opening Meeting/Review Desktop Audit	X																	x		X	
09/07	8:15	JD	QMS Rep	QMS/Management processes		x	x	x	x	x	x	x			x		x					x	x	x	X
09/07	10:15	JD	Ops	Water Treatment / Well Supply and sampling processes		x			x		x	x	x	x	x	x		x	x	x	x				X
09/07	11:45	JD	All	Lunch																					
09/07	12:30	JD	Ops	Distribution System Programs		x			x		x	x	x	x	x	x		x	x	x	x				X
09/07	2:00	JD	Maint	Instrumentation calibration & maintenance		X			x		x	x	x	x	x	x				x					x
09/07	2:30	JD	QMS Rep	Training & Certification		x			x				x	x		x					x				X
09/07	3:00	JD	-	Audit summary prep	X																				X
09/07	3:30	JD	All	Closing Meeting	X																				x

Legend for QMS Elements: 1-Quality Management System, 2-Quality Management System Policy, 3-Commitment and Endorsement, 4-QMS Representative, 5-Document and Records Control, 6-Drinking Water System, 7-Risk Assessment, 8-Risk Assessment Outcomes, 9-Organizational Structure, Roles, Responsibilities and Authorities, 10-Competencies, 11-Personnel Coverage, 12-Communications, 13-Essential Supplies and 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, 19-Internal Audits, 20-Management Review, 21-Continual Improvement

INTERNAL AUDIT SUMMARY & CHECKLIST

Appendix “B” – Documents and Records

The list of documents and records were reviewed, and observations made during the audit include:

- Municipality of Middlesex Centre Staff Interviews September 7, 2021
 - Eric Jourdre, Manager, Water and Wastewater Operations
 - Jocelyn Tyler, Compliance Coordinator, Maintenance Operator
 - Owen Scott, Maintenance Operator
 - Brian Watson, Supervisor, Water and Wastewater Operations
- Previous 2020 Internal Audit Report – September 8, 2020
- QMS Operational Plan – Municipality of Middlesex Centre – June 8, 2021
- PWE-05 Flushing Hydrants – April 22, 2017
- PTW-18 Birr Dosing Chlorine – April 25, 2017
- Quality Policy – included in Operational Plan – signed July 14, 2021
- Quality Policy – posted on website – June 8, 2016
- PWE 34-2020 Drinking Water Quality Management System Annual Audit – October 28, 2020
- PWE 24-2021 Owner Commitment and Endorsement – July 14, 2021
- Commitment and Endorsement – included in the Operational Plan – signed July 14, 2021
- Appointment of QMS Representative – included in Operational Plan
- Documents and Records Lists – included in Operational Plan (Appendix A)
- Drinking Water System Descriptions – included in Operational Plan
- Schedule C – Subject System Description Form – included in Operational Plan (MECP Form 2153E)
- Risk Assessment Procedure – included in Operational Plan
- ADMIN-700 Risk Assessment Procedure – dated October 30, 2019, version 1
- Risk Assessment Outcomes – dated July 20, 2021
- CCP-801 Chlorination Control
- ERP-140 Ballymonte Water Alarm List and Responses
- ERP-230 Melrose Water Alarm and Responses
- CCP-802 Control System Failure
- CCP-803 Backflow Prevention
- ADMIN-900 Roles, Responsibilities and Authorities
- Training records for Owen Scott, Cromwell Damile
- Business Continuity-Pandemic Plan – March 29, 2020
- Email correspondence with Eramosa re: Essential Supplier dated March 23, 2021
- Essential Supplies and Services – included in Operational Plan
- 2021 W 10-year Project Plan
- 2021 Ilderton Area Sample Calendar Aug 20-2021
- 2021 Komoka Area Sample Calendar Aug 20-2021
- ADMIN-1600 Sampling, Testing and Monitoring
- ADMIN-1700 Measurements and Recording Equipment
- WO 45289 – Birr Turbidity Analyzer Calibration
- WO 43702 – HACH Pocket Colorimeter #1 Calibration

INTERNAL AUDIT SUMMARY & CHECKLIST

-
- Middlesex Centre Distribution ERP_2021
- Birr ERP_2021
- 2021 Melrose ERP
- ERP-110 Testing ERP
- ERP Binder Table of Contents
- Debriefs from Emergency Exercises (6 for 2021)
- MC Daily Task List Komoka – 2021 8 9
- MC Daily Task List Ilderton – 2021 8 9
- PWE-18 Birr WTF – Chlorine Dosing – April 25, 2017
- Internal Audit Report – September 8, 2020
- External Audit Report – January 6-7, 2020
- External Audit Report – September 11, 2020
- Management Review Agenda – September 9, 2020
- ADMIN 2010 – Management Review Checklist (blank form)
- ADMIN 2000 – Management Review
- Management Review Implementation Action Plan – September 9, 2020
- Corrective Action Form (CAF) Tracking Spreadsheet – September 8, 2020
- PAF-2021-1 CAF/PAF and OFI Form
- Templates for documents that will be used:
 - QMS 05-01 Document Template
 - QMS 10-01 On-the-job Training Form
 - QMS 14-01 Infrastructure Review Template
 - QMS 20-01 Management Review Meeting Template
 - QMS 21-01 Continual Improvement tracking spreadsheet
 - QMS 21-02 Continual Improvement Form
- Logbook – July 22, 2020



INTERNAL AUDIT SUMMARY & CHECKLIST

Appendix "C" – Audit Checklists

Date: September 7, 2021	Auditor(s): Janine deBoer
Process or Programs: QMS Representative Auditee: Eric Joudrey, Jocelyn Tyler	
<u>Observations:</u>	
Interviewed Eric and Jocelyn on all elements reviewed during the desktop audit to confirm findings and review other documents that were not available prior to the onsite visit.	
Findings are listed in the Document Review section below.	

INTERNAL PROCESS AUDIT CHECKSHEET

Process:	Auditee(s):	Audit Date:
1.0 Adequate Resources? (s. 9, 11, 13, 14-15) 1.1 What are the different roles and responsibilities involved? 1.2 What are the resources required to carry out this/these tasks? Such as: a. Staff (and adequate staff coverage) b. Supplies c. Equipment d. Facilities / space 1.3 Are there enough resources? 1.4 Are there special requirements for the resources? a. How do we ensure the quality of supplies / equipment?	4.0 Process Under Control? (s. 5, 17) 4.1 Do you rely on documents to provide details of what tasks are required? a. SOPs? Forms? WO's? MRF's? Standards or Guidelines? b. Are they current / legible / identifiable / retrievable / stored / protected / retained? 4.2 Are documents disposed of? Why? When? 4.3 Does the work area appear safe, organized and clean? 4.4 If resources include measurement and recording equipment, is this equipment calibrated and maintained? How?	6.0 Who? (s. 2, 3-4, 10) 6.1 What are the competencies for these duties? 6.2 What types of activities can develop competencies / experience? 6.3 Do staff involved know how their duties affect drinking water quantity / quality? 6.4 Do staff know what the quality policy states? 6.5 How do staff know what legal requirements apply to their tasks?
2.0 Process Input? 2.1 What are your process inputs? a. Legal/other requirements b. Work orders or maintenance requests c. Internal or external customers 2.2 Is there a "previous process step" that feeds into this one? 2.3 Are you happy with the supplies / data / information provided by the previous step?		7.0 Output? (s. 5) 7.1 What is the output of your process? 7.2 What records do you produce? a. Are they legible / identifiable / retrievable / stored / protected / retained? b. Are they complete? 7.3 Are records disposed of? Why? When?
3.0 Measured? (s. 8, 12, 16) 3.1 What things do you check, sample, monitor or test? 3.2 Where do you record results? Are records complete? 3.3 Is the information reviewed, analyzed or checked for effectiveness (in meeting requirements)? 3.4 Do you communicate results? To whom? verbally? In Writing?	5.0 What If Out-of-Control? (s. 7-8, 12, 18) 5.1 What types of things can go wrong? (out-of-ordinary / emergencies / service interruptions) 5.2 What actions are taken when they do go wrong? 5.3 What notifications? To whom? 5.4 What do you document? Where? 5.5 Is there an emergency contact list? Is it maintained?	8.0 Stakeholder Satisfaction? (s. 12, 20) 8.1 Are relevant stakeholders satisfied with this work? a. internal / external customers, b. government agencies, c. public, d. owner, e. top management 8.2 How do you know? 9.0 Evidence of Continual Improvement? (s. 21) 9.1 What are some improvements related to this process that you have seen / implemented in the past year? 9.2 Is there anything you'd like to change about this process?

INTERNAL PROCESS AUDIT CHECKSHEET

Process: Water Treatment/Well Supply	Auditee(s): Owen Scott, Maintenance Operator	Audit Date: September 7, 2021
1.0 Adequate Resources? (s. 9, 11, 13, 14-15) <ul style="list-style-type: none"> - Scheduling of duties - Required PPE is provided - Training on ERP procedures - Information / work instructions are provided for job duties - enough resources are available to adequately perform duties 	4.0 Process Under Control? (s. 5, 17) <ul style="list-style-type: none"> - Daily tasks lists at each plant informs operator of what needs to be done. Pumping stations checks are includes with the plants - Weekly checks are given out each Friday - Work orders are printed out monthly and distributed to the facilities. Operators complete work and close work orders - Calibrations are done quarterly on turbidimeters and if chlorine analyzers are out by > 5% - Handheld chlorine analyzers are checked by outside contractors annually - Flow meters calibrated annually by outside company, calibration stickers are placed on the instruments and records maintained on the N: drive 	6.0 Who? (s. 2, 3-4, 10) <ul style="list-style-type: none"> - To do this job should have college or university with environmental focus - OIT/ELC to get the job - Confined space/working at heights - Aware of the Quality Policy and who the QMS rep is
2.0 Process Input? <ul style="list-style-type: none"> - Currently holds WT OIT OT104688 expiry 03/31/2022, WDS1 113745 expiry 04/30/2024 - Uses O. Reg. 170/03 for legal requirements - Is aware of the training hours required to maintain certificates 		7.0 Output? (s. 5) <ul style="list-style-type: none"> - records created included monthly reports. These are scanned and stored on the 'N' Drive. Originals are stored at the WWTP.
3.0 Measured? (s. 8, 12, 16) <ul style="list-style-type: none"> - Use sampling calendars to know which samples to take - Deliver samples to accredited lab in London (SGS) - Samples taken are recorded on logsheets and in logbooks - Check turbidity, flow to analyzers, pH probes, chlorine analyzers - If results are out by > 5% then adjustments are made to the analyzers - Check trends on SCADA 	5.0 What If Out-of-Control? (s. 7-8, 12, 18) <ul style="list-style-type: none"> - For high turbidity reading, check trending and review logbook for clues as to a cause. If no reason and high reading is confirmed, drain and clean analyzer - Low chlorine below 0.05 mg/L, contact Supervisor/Manager to report. Increase chlorine dosage, flush system and any other requirements from the MOH. If supervisor/manager is not available would report the AWQI. - Emergency contact list in the ERP binder that is located in each vehicle. Reviewed Table of contents. - Critical Control Point information is included in the ERP binder 	8.0 Stakeholder Satisfaction? (s. 12, 20) <ul style="list-style-type: none"> - Municipality - Customers - MECP - Other Operators - Complaints may be received but typically these go to management. Will have to respond to these complaints if necessary
		9.0 Evidence of Continual Improvement? (s. 21) <ul style="list-style-type: none"> - Upgraded electronics so locates are tracked online instead of on paper - numerous upgrades to equipment - Suggestions are well received by management

INTERNAL PROCESS AUDIT CHECKSHEET

Process: Distribution System/Management	Auditee(s): Brian Watson, Supervisor	Audit Date: September 7, 2021
1.0 Adequate Resources? (s. 9, 11, 13, 14-15) - in charge of daily operations, scheduling contractors, compliance, reporting AWQI's, review drawings - Updating logsheets - have adequate resources to do the job	4.0 Process Under Control? (s. 5, 17) - Currently have 5 operators + compliance coordinator - Staffing is adequate for winter but could use more resources in the summer. Watermain commissioning takes one full time operator - POS – weekly work plan is sent out on Friday afternoon, operators like this - Procedures, daily task sheet for each facility - SOP's/ERP – have numerous documents - Reviewed PWE-05 Flushing Hydrants, April 25, 2017 and PWE-18 Birr Chlorine Dosing April 25, 2017 - Form 2's are used frequently. Staff does most maintenance and repairs	6.0 Who? (s. 2, 3-4, 10) - need to have WDS1, WWT1, WWC1 along with college and 2-3 years experience to be supervisor - Currently ORO because Manager doesn't have proper certificate
2.0 Process Input? - Currently hold WDS3 89334, expiry July 31, 2024 - Uses Supervisor checklist - Emergency response procedures (reference SOP's) - POS – Management meetings held every Tuesday with all Public Works. Good way to share information		7.0 Output? (s. 5) OFI – Daily task sheets being used have some revisions listed but not all charts have a date. Consider one revision date for each form - Work orders, logsheets, logbooks stored in the filing cabinets at the WWTP - All except physical logbooks are scanned and stored electronically - considering changing to electronic logbooks and logsheets
3.0 Measured? (s. 8, 12, 16) - Use JobCal for the work order system. Works well but creates a lot of paper - Records flow, chlorine residual, turbidity, pump run times - On the sampling schedule the yellow highlights indicate additional samples - sample results are reviewed by the supervisor or compliance coordinator - creates monthly reports which are used to create the Annual Report for council and MECP - calibrations – online analyzers checked daily, calibrated as needed. Have work orders for regular maintenance.	5.0 What If Out-of-Control? (s. 7-8, 12, 18) - Staff retention has been good for the past 2 years. Have made some wage increases - SOP for adverse situations - If an abnormal result is found in sampling, would review and try to find out the reason - watermain breaks – follow ERP procedures, emergency locates, throttle valves, excavating, Category 2 will reported as AWQI, flushing and samples - emergency contacts in ERP	8.0 Stakeholder Satisfaction? (s. 12, 20) - Managers/Directors/CAO - Council - Public - If not maintaining good water quality you will hear about it 9.0 Evidence of Continual Improvement? (s. 21) - Upgrading old equipment (chlorine pumps). Investing in new equipment - Interconnecting the Komoka and Delaware distribution systems. This will eliminate the need for London water for these systems.

INTERNAL PROCESS AUDIT CHECKSHEET

Process: Distribution System	Auditee(s): Jocelyn Tyler	Audit Date: September 7, 2021
1.0 Adequate Resources? (s. 9, 11, 13, 14-15) - have equipment required for distribution system maintenance including wrenches, hydrant keys, screwdrivers, valve exercisers - could use an additional valve turner	4.0 Process Under Control? (s. 5, 17) - want to exercise valves on an annual basis. Was not sure if this was being accomplished. Use WACHS system to track the maintenance - Hydrant records including maintenance on paper records. Includes location, flows, etc. - For obsolete records this is an admin role	6.0 Who? (s. 2, 3-4, 10) - Provides safe drinking water
2.0 Process Input? - Currently holds WDS2 98318, expiry 30/04/2023 - training - O. Reg. 170, O. Reg. 128 - SDWA		7.0 Output? (s. 5) - Records that are created are stored at the WWTP
3.0 Measured? (s. 8, 12, 16) - Weekly, annual, quarterly samples including bacti, nitrate/nitrite, THM/HAA, fluoride, sodium - Chlorine residual in the distribution system done twice per week. Minimum is 0.05 mg/L - Operator logsheet, specific sheet for residuals - eRis records information from SCADA	5.0 What If Out-of-Control? (s. 7-8, 12, 18) Things that could go wrong include: - chlorination failure - watermain break - communication loss - loss of pressure - fire - pump breakdown - For a low chlorine residual would check analyzer, stop flow if accurate, check chlorine dosage. If below 0.05 mg/L report as and adverse. ORO typically reports AWQI.	8.0 Stakeholder Satisfaction? (s. 12, 20) - customers - co-workers - employer Annual reviews, weekly discussions Lack of complaints
		9.0 Evidence of Continual Improvement? (s. 21) - improvements to chlorine system - Delaware upgrades - New flushing system for hydrants - Training opportunities

DOCUMENT REVIEW – DWQMS 2.0 (Condition Expected)	DOCUMENT REVIEW – Auditor Comments (Condition Found)
<p>1. Quality Management System (QMS) PLAN – The OP shall <i>document a QMS</i> that <i>meets the requirements</i> of this Standard. DO – The OA shall <i>establish and maintain the QMS</i> in accordance with the requirements of this Standard and the <i>policies and procedures</i> documented in the OP.</p>	<p>Viewed the Municipality of Middlesex Centre Operational Plan dated June 8, 2021 QMS is implemented and achieving intended outcomes and there is evidence of continual improvement noted throughout this report.</p>
<p>2. QMS Policy PLAN – The OP shall <i>document a QMS Policy</i> that provides the foundation for the QMS, and: a) includes a <i>commitment</i> to the <i>maintenance and continual improvement of the QMS</i>, b) includes a commitment to the <i>Consumer to provide safe drinking water</i>, c) includes a commitment to <i>comply with applicable legislation and regulations</i>, and d) is in a form that <i>can be communicated</i> to all OA <i>personnel</i>, the <i>Owner</i> and the <i>Public</i>. DO – The OA shall <i>establish and maintain a QMS</i> that is consistent with the QMS Policy.</p>	<p>Viewed the Municipality of Middlesex Centre's policy in the Operational Plan. Contains all required commitments included in these sections. Policy is communicated to staff through staff information sessions. The policy is also available on the municipality's website OFL – the link to the Quality Policy on the website is dated June 8, 2016 with reference that it is to be updated as required. The policy in the Operational Plan is slightly different than this. The Quality Management Policy referenced on the website should be removed or updated. OFL – one of the commitments in the Quality Policy in the Operational Plan is to comply with legislation and regulations. Should include 'applicable' in the commitment</p>
<p>3. Commitment and Endorsement PLAN – The OP shall contain a <i>written endorsement</i> of its contents by <i>Top Management</i> and the <i>Owner</i>. DO – Top Management shall provide <i>evidence</i> of its <i>commitment</i> to an effective QMS by: a) ensuring that a <i>QMS is in place that meets</i> the requirements of this Standard, b) <i>ensuring</i> that the OA is aware of all applicable <i>legislative and regulatory requirements</i>, c) <i>communicating</i> the <i>QMS</i> according to the procedure for communications, d) <i>determining, obtaining or providing the resources needed</i> to maintain and continually improve the QMS.</p>	<p>Reviewed commitment and endorsement in the Operational Plan Contains all the required commitments required in this section Reviewed Report PWE 24-2021- that was submitted to Council on July 14, 2021 for endorsement of the Operational Plan.</p>
<p>4. QMS Representative PLAN – The OP shall <i>identify a QMS representative</i>. DO – Top Management shall <i>appoint and authorize</i> a QMS representative who, irrespective of other responsibilities, shall: a) <i>administer</i> the QMS by <i>ensuring that processes and procedures needed</i> for the QMS are <i>established and maintained</i>, b) <i>report to Top Management</i> on the <i>performance</i> of the QMS and any need for <i>improvement</i>, c) ensure that <i>current versions of documents</i> required by the QMS are being <i>used at all times</i>, d) ensure that <i>personnel</i> are <i>aware</i> of all applicable <i>legislative and regulatory requirements</i> that pertain to their duties for the operation of the Subject System, and e) promote <i>awareness of the QMS</i> throughout the OA.</p>	<p>QMS Representative is identified in the Operational Plan as the Manager of Water and Wastewater Operations (currently Eric Joudrey). POS – Consideration is being given to change the QMS Rep to the Compliance Coordinator QMS Rep currently has an OIT in Water Treatment, Water Distribution, Water Distribution & Supply. 20 years in managing water and wastewater. University of Waterloo degree in Environmental Sciences. Staff are aware of who the rep is Staff show awareness of the QMS</p>
<p>5. Document and Records Control PLAN – The OP shall document a procedure for Document and Records control that describes how: a) <i>Documents required</i> by QMS are: i. kept <i>current, legible</i> and readily <i>identifiable</i> ii. <i>retrievable</i> iii. <i>stored, protected, retained and disposed of</i>, and b) <i>Records required</i> by the QMS are: i. kept <i>legible</i>, and readily <i>identifiable</i> ii. <i>retrievable</i> iii. <i>stored, protected, retained and disposed of</i>. DO – The OA shall implement and conform to the procedure for Document and Records control and shall ensure that QMS documentation for the Subject System includes: a) the <i>OP</i> and its associated <i>policies and procedures</i>, b) Documents and Records determined by the OA as <i>being needed</i> to ensure the effective <i>planning, operation and control</i> of its operations, and c) the results of <i>internal and external Audits</i> and <i>management reviews</i>.</p>	<p>Reviewed procedure in the Operational Plan. All required information was listed in the Operational Plan in Section 5.0. Review Appendix A of the Operational Plan. OFL – Operational Plan is listed in Appendix A but the wrong revision date. Listed as 2021-06-07. OFL – consider a master document list of all documents. Currently not all documents are tracked on the list in the Operational Plan New documents are emailed to staff, weekly meetings. Example from May 11, 2020 of document updates sent to staff Retention times are listed in Appendix A of the Operational Plan NC – There are many instances where the Operational Plan contradicts the information in the QMS documents. (ie. ADMIN-700 and ADMIN-1200). The Operational Plan was recently updated, and the review of these documents has not been completed. There are also some new documents that will be added.</p>
<p>6. Drinking Water System (DWS) PLAN – The OP shall <i>document</i>, as applicable: a) for the Subject System: i. the name of the <i>Owner</i> and <i>OA</i>, ii. if the system includes equipment that provides <i>Primary Disinfection</i> and/or <i>Secondary Disinfection</i>: A. a <i>description of the system</i> including all applicable <i>Treatment System processes</i> and <i>Distribution System components</i>, B. a Treatment System <i>process flow chart</i>, C. a description of the <i>water source</i>, including:</p>	<p>Reviewed Drinking Water System information in the Operational plan. All required information was listed. Process flow diagrams are shown in Appendix B of the Operational Plan. OFL – Schedule C – Director's Directions for Operational Plans (Subject System Description Form) is not completed properly. There should be individual forms for each system.</p>

DOCUMENT REVIEW – DWQMS 2.0 (Condition Expected)	DOCUMENT REVIEW – Auditor Comments (Condition Found)
<p>I. general <i>characteristics of the raw water</i> supply, II. <i>common event-driven fluctuations</i>, and III. any resulting <i>operational challenges and threats</i>.</p> <p>iii. if the system does not include equipment that provides Primary Disinfection or Secondary Disinfection: A. a description of the system including all Distribution System components, and B. a description of any <i>procedures</i> that are in place to <i>maintain disinfection residuals</i>.</p> <p>b) if the Subject System is an Operational Subsystem, a summary <i>description</i> of the <i>Municipal Residential Drinking Water System</i> it is a <i>part of</i> including the name of the <i>OA(OA's)</i> for the other Operational Subsystems.</p> <p>c) if the Subject System is <i>connected to one or more</i> other Drinking Water Systems owned by different <i>Owners</i>, a summary description of those systems which: i. indicates whether the Subject System <i>obtains water from or supplies water to</i> those systems, ii. names the <i>Owner</i> and <i>OA(OA's)</i> of those systems, and iii. identifies which, if any, of those systems that the Subject System <i>obtains</i> water from are relied upon to <i>ensure the provision of safe drinking water</i>.</p> <p>DO – The OA shall ensure that the <i>description</i> of the Drinking Water System is <i>kept current</i>.</p>	
<p>7. Risk Assessment PLAN – The OP shall document a risk assessment process that: a) Considers potential hazardous events and associated hazards, as identified in MOECC document titled <i>Potential Hazardous Events for Municipal Residential Drinking Water Systems</i>, dated February 2017 as it may be amended. A copy of this document is available at www.ontario.ca/drinkingwater. b) ID's <i>additional potential</i> hazardous events & associated hazards, c) <i>assesses</i> the <i>risks</i> assoc. w/ the <i>occurrence</i> of hazardous events, d) <i>ranks</i> the hazardous events according to the <i>associated risk</i>, e) <i>identifies control measures</i> to address the potential hazards and hazardous events, f) identifies <i>Critical Control Points</i>, g) identifies a method to <i>verify, at least once every calendar year</i>, the <i>currency</i> of the information and the <i>validity of the assumptions</i> used in the risk assessment, h) ensures that the risks are <i>assessed at least once every thirty-six months</i>, and i) considers the <i>reliability and redundancy of equipment</i>.</p> <p>DO – The OA shall <i>perform</i> a risk assessment <i>consistent with the documented</i> process.</p>	<p>Reviewed Risk Assessment procedure included in the Operational Plan Reviewed ADMIN-700 Risk Assessment Procedure The Potential Hazardous Events for Municipal Residential Drinking Water Systems was considered during the review.</p>
<p>8. Risk Assessment Outcomes PLAN – The OP shall document: a) the <i>identified potential hazardous events and associated hazards</i>, b) the <i>assessed risks associated with the occurrence</i> of hazardous events, c) the <i>ranked</i> hazardous events, d) the <i>identified control measures</i> to address the potential hazards and hazardous events, e) the identified <i>Critical Control Points</i> and their respective <i>Critical Control Limits</i>, f) procedures and/or processes to <i>monitor the Critical Control Limits</i>, g) procedures to <i>respond to deviations from the Critical Control Limits</i>, and h) procedures for <i>reporting and recording deviations</i> from the Critical Control Limits.</p> <p>DO – The OA shall <i>implement and conform</i> to the procedures.</p>	<p>Reviewed CCP-801 Chlorination Control, CCP-802 Control System Failure, CCP-803 Backflow Prevention. Reviewed ERP-140 Ballymonte Water Alarms and Responses and ERP-230 Melrose Water Alarms and Responses OFI – the Risk Assessment was discussed at Management review but was not reviewed. Consider a more thorough review at the Management Review meeting</p> <p>NC – The CCP chart in the Risk Assessment Outcomes report dated July 20, 2021 is not consistent with what is listed in the Operational Plan. Some items in the list are above the High limit of 9 with no reason given for not being a CCP.</p>
<p>9. Org. Structure, Roles, Responsibilities and Authorities PLAN – The OP shall: a) describe the <i>organizational structure</i> of the OA including <i>respective roles, responsibilities and authorities</i>, b) delineate <i>corporate oversight</i> roles, responsibilities, authorities in the case where the OA operates multiple Subject Systems, c) identify the <i>person, persons or group of people</i> within the management structure of the org. responsible for undertaking the <i>Management Review</i> described in Element 20, d) identify the person, persons or group of people, having <i>Top Management responsibilities</i> required by this Standard, along with their responsibilities, & e) identify the <i>Owner</i> of the Subject System.</p>	<p>Reviewed Organizational Roles, Responsibilities, and authorities in the Operational Plan All required information was included. Reviewed ADMIN-900 Roles, Responsibilities and Authorities.</p>

DOCUMENT REVIEW – DWQMS 2.0 (Condition Expected)	DOCUMENT REVIEW – Auditor Comments (Condition Found)
<p>DO – The OA shall keep current the description of the organizational structure including respective roles, responsibilities and authorities, and shall communicate this information to OA personnel and the Owner.</p>	
<p>10. Competencies PLAN – The OP shall document: a) competencies required for personnel performing duties directly affecting drinking water quality, b) activities to develop and/or maintain competencies for personnel performing duties directly affecting drinking water quality, and c) activities to ensure that personnel are aware of the relevance of their duties and how they affect safe drinking water.</p> <p>DO – The OA shall undertake activities to: a) meet and maintain competencies for personnel directly affecting drinking water quality and shall maintain records of these activities, and b) ensure that personnel are aware of the relevance of their duties and how they affect safe drinking water and shall maintain records of these activities.</p>	<p>Reviewed Competencies listed in the operational plan. All required information is listed. Owen Scott – Training records for March 25, 2021, Logbook and AWQI May 28, 2020 Cromwell Damile – Training record dated March 25, 2021 POS Compliance 365 program has been implemented for tracking training hours</p>
<p>11. Personnel Coverage PLAN – The OP shall document a procedure to ensure that sufficient personnel meeting identified competencies are available for duties that directly affect drinking water quality. DO – The OA shall implement and conform to the procedure.</p>	<p>Reviewed Personnel Coverage section in the operational plan. All required information is listed Logbook has ORO listed (July 22, 2020) Reviewed Business Continuity/Pandemic Plan dated March 29, 2020. Lists water supply as a vital service OFL consider removing the clause about the amendments to O. Reg. 128/04. This may cause issues if the changes don't occur</p>
<p>12. Communications PLAN – The OP shall document a procedure for communications that describes how the relevant aspects of the QMS are communicated between Top Management and: a) the Owner, b) OA personnel, c) Suppliers that have been identified as essential under Plan (a) of Element 13 of this Standard, and d) the Public.</p> <p>DO – The OA shall implement and conform to the procedure.</p>	<p>Reviewed Communications section in the Operational Plan. All required information is listed. Reviewed ADMIN-1200 Communications Procedure</p> <p>AWQI – July 10, 2021 #154599, missed sample, samples taken but not delivered to the lab on time AWQI – July 31, 2021 #154942, result of watermain break in London, had to issue BWA for Ballymote</p> <p>Staff Communication - Regular ERP meetings, weekly staff meetings, OTJ practical Communicate with owner through endorsement, annual report and review after audits and inspections. For upper management have management review Essential Suppliers – sent an email with information about the DWQMS and require confirmation of the receipt. Example Eramosa, sent March 23, 2021, received confirmation back on March 23, 2021</p>
<p>13. Essential Supplies and Services PLAN – The OP shall: a) identify all supplies and services essential for the delivery of safe drinking water and shall state, for each supply or service, the means to ensure its procurement, and b) include a procedure by which the OA ensures the quality of essential supplies and services, in as much as they may affect drinking water quality. DO – The OA shall implement and conform to the procedure.</p>	<p>Reviewed Essential Suppliers and Services in the Operational Plan. All required information is listed For chemical shipments, compare the bill of landing with the label on the container. OFL for the Essential Suppliers listed in the ERP in some instances there is only a contact name and no company listed. Consider listing the company in case the contact person leaves.</p>
<p>14. Review and Provision of Infrastructure PLAN – The OP shall document a procedure for reviewing the adequacy of the infrastructure necessary to operate and maintain the Subject System that: a) Considers the outcomes of the risk assessment documented under Element 8, and b) Ensures that the adequacy of the infrastructure necessary to operate and maintain the Subject System is reviewed at least once every Calendar Year.</p> <p>DO – The OA shall implement and conform to the procedure and communicate the findings of the review to the Owner.</p>	<p>Review and Infrastructure as described in the Operational Plan. All required information is listed. Reviewed 2021 W 10-year Project Plan</p>
<p>15. Infrastructure Maintenance, Rehabilitation and Renewal PLAN – The OP shall document: a) a summary of the OA's infrastructure maintenance, rehabilitation and renewal programs for the Subject System, and b) a long term forecast of major infrastructure maintenance, rehabilitation and renewal activities.</p>	<p>Reviewed Infrastructure Maintenance, Rehabilitation and Renewal section in the Operational Plan. All required information is listed. Reviewed 2021 W 10-year Project Plan Asset Essentials will be used to track assets (currently in development)</p>

DOCUMENT REVIEW – DWQMS 2.0 (Condition Expected)	DOCUMENT REVIEW – Auditor Comments (Condition Found)
<p>DO – The OA shall:</p> <ul style="list-style-type: none"> a) keep the summary of the infrastructure maintenance, rehabilitation and renewal programs current, b) ensure that the long term forecast is reviewed at least once every Calendar Year, c) communicate the programs to the Owner, and d) monitor the effectiveness of the maintenance program. 	
<p>16. Sampling, Testing and Monitoring PLAN – The OP shall document:</p> <ul style="list-style-type: none"> a) a sampling, testing and monitoring procedure for process control and finished drinking water quality including requirements for sampling, testing and monitoring at the conditions most challenging to the Subject System, b) a description of relevant sampling, testing or monitoring activities, if any, that take place upstream of the Subject System, and c) a procedure that describes how sampling, testing and monitoring results are recorded and shared between the OA and the Owner, where applicable. <p>DO – The OA shall implement and conform to the procedures.</p>	<p>Reviewed Sampling, Testing and Monitoring as listed in the Operational Plan. All items were listed Reviewed 2021 Ilderton Area and 2021 Komoka Area sampling calendars. Reviewed ADMIN-1600 Sampling Testing and Monitoring. OFL ADMIN-1600 is missing a reference to HAA quarterly sampling</p>
<p>17. Measurement and Recording Equipment Calibration and Maintenance PLAN – The OP shall document a procedure for the calibration and maintenance of measurement and recording equipment.</p> <p>DO – The OA shall implement and conform to the procedure.</p>	<p>Reviewed Measurement and recording equipment calibration and maintenance in the operational plan. All required information was listed. Reviewed ADMIN-1700 Measurements and Recording Equipment OFL the calibration required for instruments that are part of CT calculations needs to be updated to match the new requirements in the MDWL. POS Dude Solutions will be replacing JobCal for work orders. This will mean that paper copies will not have to be used. Reviewed Calibration records. WO 45289 – Birr Turbidity, WO 43702 HACH pocket Colorimeter</p>
<p>18. Emergency Management PLAN – The OP shall document a procedure to maintain a state of emergency preparedness that includes:</p> <ul style="list-style-type: none"> a) a list of potential emergency situations or service interruptions, b) processes for emergency response and recovery, c) emergency response training and testing requirements, d) Owner and OA responsibilities during emergency situations, e) references to municipal emergency planning measures as appropriate, and f) an emergency communication protocol and an up-to-date list of emergency contacts. <p>DO – The OA shall implement and conform to the procedure.</p>	<p>Reviewed ERP for Middlesex Distribution, Birr and Melrose Reviewed Debriefs (6) for 2021. Reviewed PAF-2021-1 from Debrief – Design Drawings OFL Follow-up actions for the recommended actions in the debriefs could be tracked in the CAF/OFI/PAF Procedure POS the ERP's are very thorough and contain a good cross section of information OFL the 3 ERP's contain a lot of information that is duplicated. Consider consolidating the information into one ERP to simplify the updating process.</p>
<p>19. Internal Audits PLAN – The OP shall document a procedure for internal Audits that:</p> <ul style="list-style-type: none"> a) evaluates conformity of the QMS with the requirements of this Standard, b) identifies internal Audit criteria, frequency, scope, methodology and record-keeping requirements, c) considers previous internal and external Audit results, and d) describes how QMS Corrective Actions are identified and initiated. <p>DO – The OA shall implement and conform to the procedure and shall ensure that internal Audits are conducted at least once every Calendar Year.</p>	<p>Reviewed Internal Audit in the Operational Plan. All requirements are listed. OFL Consider removing the three-year requirement that is listed. Last internal audit was conducted September 8, 2020. With 3 OFI's listed. All were addressed prior to this audit.</p>
<p>20. Management Review PLAN – The OP shall document a procedure for management review that evaluates the continuing suitability, adequacy and effectiveness of the QMS and that includes consideration of:</p> <ul style="list-style-type: none"> a) incidents of regulatory non-compliance, b) incidents of adverse drinking water tests, c) deviations from Critical Control Point limits and response actions, d) the effectiveness of the risk assessment process, e) internal and third-party Audit results, f) results of emergency response testing, g) operational performance, h) raw water supply and drinking water quality trends, i) follow-up on action items from previous management reviews, 	<p>Reviewed Management Review in the Operational Plan. All requirements are listed. Reviewed Agenda for Management Review meeting held on September 9, 2020 Reviewed Management Review Implementation Action Plan – September 9, 2020 Reviewed ADMIN-2000 Management Review OFL in ADMIN-2000 Management Review it refers to Efficacy of the Risk Assessment process. This should be changed to Effectiveness</p>

DOCUMENT REVIEW – DWQMS 2.0 (Condition Expected)	DOCUMENT REVIEW – Auditor Comments (Condition Found)
<p>j) the status of management action items identified between reviews,</p> <p>k) changes that could affect the QMS,</p> <p>l) Consumer feedback,</p> <p>m) the resources needed to maintain the QMS,</p> <p>n) the results of the infrastructure review,</p> <p>o) OP currency, content and updates, and</p> <p>p) staff suggestions.</p> <p>DO – Top Management shall implement and conform to the procedure and shall:</p> <p>a) ensure that a management review is conducted at least once every Calendar Year,</p> <p>b) consider the results of the management review and identify deficiencies and actions items to address the deficiencies,</p> <p>c) provide a record of any decisions and action items related to the management review including the personnel responsible for delivering the action items and the proposed timelines for their implementation, and</p> <p>d) report the results of the management review, the identified deficiencies, decisions and action items to the Owner.</p>	
<p>21. Continual Improvement</p> <p>PLAN – The OA shall develop a procedure for tracking and measuring continual improvement of its QMS by:</p> <p>a) reviewing and considering applicable best management practices, including any published by the Ministry of the Environment and Climate Change and available on www.ontario.ca/drinkingwater, at least once every thirty-six months;</p> <p>b) documenting a process for identification and management of QMS Corrective Actions that includes:</p> <ol style="list-style-type: none"> investigating the cause(s) of an identified non-conformity, documenting the action(s) that will be taken to correct the non-conformity and prevent the non-conformity from re-occurring, and reviewing the action(s) taken to correct the non-conformity, verifying that they are implemented and are effective in correcting and preventing the re-occurrence of the non-conformity. <p>c) documenting a process for identifying and implementing Preventive Actions to eliminate the occurrence of potential non-conformities in the QMS that includes:</p> <ol style="list-style-type: none"> reviewing potential non-conformities that are identified to determine if preventive actions may be necessary, documenting the outcome of the review, including the action(s), if any, that will be taken to prevent a non-conformity from occurring, and reviewing the action(s) taken to prevent a non-conformity, verifying that they are implemented and are effective in preventing the occurrence of the non-conformity. <p>DO – The OA shall strive to continually improve the effectiveness of its QMS by implementing and conforming to the procedure.</p>	<p>Reviewed Continual Improvement in the Operational Plan. All requirements are listed</p> <p>Reviewed Corrective Action Form (CAF) Tracking Spreadsheet dated October 8, 2020.</p> <p>Reviewed previous 2 external audits. Findings were addressed in the CAF tracking log</p> <p>OFI consider recording non-compliance and recommended actions from MECP inspections are tracked and recorded on the MC-CAF/OFI Log</p>

Appendix “D” – Auditor CV and Training Certificates

Curriculum Vitae: Brigitte Roth, BES, EP(EMSLA)

SUMMARY:

A management systems, compliance and risk management professional with 25 years' experience in:

- achieving legislative compliance,
- optimizing and integrating management systems,
- conducting risk assessments and analysis,
- preparing and improving emergency response plans,
- planning and executing annual emergency test exercises and debrief sessions,
- leading and carrying out compliance and management system audits, and
- developing and delivering training related to the above areas of expertise.

A certified environmental professional with ECO Canada, as EP(CEA) from 2005-2015 and currently as EP(EMSLA) since 2015; she has conducted environmental compliance, pollution prevention and management system audits at over 95 unique organizations of various industries in Ontario and at 66 golf courses under the Integrated Pest Management Accreditation Program. She has overseen the implementation and integration of management systems in conformity with ISO 14001, ISO 9001, ISO 17025, OHSAS 18001 and Ontario's Drinking Water Quality Management Standard.

Also experienced as an alternate Community Emergency Management Coordinator (CEMC) for the City of Guelph from 2015 to 2017 and a Planning Section Chief in the City's Emergency Operations Centre from 2014 to 2017.

PROFESSIONAL DESIGNATIONS:

2015, Environmental Professional – Environmental Management Systems Lead Auditor, ECO Canada
2005-2015, Environmental Professional – Compliance Auditor, ECO Canada

EDUCATION & KEY TRAINING:

2018, ISO/IEC 17025:2017, Waher Consulting Services
2016, Community Emergency Management Coordinator, Emergency Management Ontario
2014-2017, Emergency Management Certificate program courses, Justice Institute of British Columbia
2013, Project Management Certificate (with High Honours), Sheridan College
1998, Environmental Management System Lead Auditor, KPMG (Certificate No. E0034)
1997, Quality Management System Lead Auditor, KPMG (Certificate No. K193)
1996, Certificate of Environmental Assessment, University of Waterloo
1996, Bachelor of Environmental Studies (Honours Geography), University of Waterloo

EMPLOYMENT HISTORY:

Principal Consultant at [Acclaims Environmental Inc.](#)

January 2018 - present

Helping optimize the effectiveness of customers' integrated management systems through audits and facilitated sessions to improve:

- legislative compliance (e.g. emissions reporting, approvals and environmental protection plans)
- conformance to management system standards (e.g. DWQMS, ISO 14001, ISO 9001, ISO 45001)
- risk assessment and management
- emergency preparedness and business continuity

Trainer at [Walkerton Clean Water Centre](#)

October 2016 - present

Contract trainer for the following courses:

- Drinking Water Quality Management Standard (DWQMS)
- Internal Auditing for DWQMS
- Responsibilities under the Statutory Standard of Care
- Risk Assessment & Emergency Preparedness

Program Coordinator – Project and Program Management at [City of Guelph](#)

March 2017 – January 2018

For the City's Corporate Project Management Office (CPMO):

- Developed and promoted methodologies and standards,
- Reported to the Executive Team and city Council on the CPMO's performance,
- Promoted and trained on project management processes,
- Implemented project document and records control, and
- Researched and implemented best practices.

Quality Assurance Coordinator at [City of Guelph](#)

October 2008 – March 2017

Managed the processes related to:

- Municipal Drinking Water Licensing,
- Drinking Water Quality Management Standard (DWQMS) accreditation,
- Leading the audit team in internal audits and coordinating external audits,
- Risk assessment, analysis and emergency response plans, and
- Regular compliance reports to Top Management and city Council.

Pollution Prevention Coordinator / Senior Environmental Auditor at [CASF](#)

2001 – 2008

- Conducted over fifty pollution prevention and/or compliance audits at metal finishing sites.
- Designed and delivered Advanced Environmental Management Series of courses (Auditing 101; Pollution Prevention Planning & Materials Accounting; Regulatory Compliance; Spills Prevention, Emergency Preparedness and Response).
- Chaired annual Metal Finishing Conference committee from 2000-2008.

Environmental Management System Specialist at [WESA Group Inc.](#) (BluMetric Environmental Inc.)

2004 – 2006

- Conducted compliance and management system audits at industrial and municipal drinking water sites.
- Assisted with management system implementations (ISO 9001, ISO 14001, OHSAS 18001, DWQMS).
- Assisted industrial clients with Canada's National Pollutant Release Inventory annual reporting.
- Assisted in the application process for industrial facilities' Certificates of Approval (Air & Noise).

Quality and Environmental Coordinator at [Kuntz Electroplating Inc.](#)

1996 – 2001

- Project manager for ISO 9001, ISO 14001 and ISO 17025 implementation and maintenance.
- Facilitated annual reviews of quality policies, risk assessments and emergency response plans.
- Kept up-to-date on all changes in regulatory / customer requirements and reported to management.
- Developed and delivered various quality and environmental management system training programs.
- Managed external and internal audit plans for all management systems and functioned as lead auditor.

ENVIRONMENTAL CAREERS ORGANIZATION OF CANADA

hereby certifies that

Brigitte Roth

has been awarded the title of

**Environmental Professional - Environmental
Management Systems Lead Auditor EP(EMSLA)**

in the following specialization(s)

Environmental Management Systems

Ratified by the Canadian Environmental Certification Approvals Board (CECAB), and in accordance with the EP Code of Conduct and the current Occupational Standards, for a certification term of five (5) years, from:

11/10/2020 to 11/09/2025

Brigitte Roth has been a certified member since
07/12/2005



Chair, CECAB

Registrar

70855



CERTIFICATE OF ACHIEVEMENT

BRIGITTE ROTH

has successfully completed the

Internal Auditing for the Drinking Water Quality Management Standard course

WWOCS Course ID # 8194

September 24, 2020 to September 25, 2020

Director Approved Continuing Education Units: 1.4

Carl Kuhnke
CEO

September 25, 2020

Date

www.wcwc.ca

Curriculum Vitae: Janine deBoer

SUMMARY:

A management systems and compliance professional with over 25 years' experience in:

- water operations (Class IV Water Treatment, Class III Water Distribution & Supply)
- achieving legislative compliance (as related to water industry and health & safety),
- optimizing and integrating management systems,
- conducting risk assessments and analysis,
- preparing and improving emergency response plans,
- planning and executing annual emergency test exercises and debrief sessions,
- leading and carrying out compliance and management system audits, and
- developing and delivering training related to the above areas of expertise.

A certified internal auditor for ISO 9001, ISO 14001, HACCP and the Drinking Water Quality Management Standard (DWQMS). Oversaw the implementation and integration of management systems in conformity to ISO 9001, ISO 14001, and Ontario's DWQMS for Durham Region over the past 12 years. Also experienced as a certified member of the Joint Health & Safety Committee.

PROFESSIONAL DESIGNATIONS & AFFILIATIONS:

- Class IV Water Treatment (expiring February 28, 2022)
- Class III Water Distribution & Supply (expiring April 30, 2024)
- Representative of the Standards Council of Canada for TC224 Service Activities Relating to Drinking Water Supply Systems and Wastewater Systems
- Member of Ontario Water and Wastewater Agency Response Network (OnWARN) Leadership Team

EDUCATION & KEY TRAINING:

2008, Internal Auditing for the DWQMS, Walkerton Clean Water Centre

2003, Internal Auditor Training (ISO 9001 and ISO 14001), BRI International Inc.

1992, Food & Drug Technology, Durham College

1990, Bachelor of Science / Education, Trent University

OTHER RELEVANT CERTIFICATES AND COURSES:

- UOIT Masters Certificate in Public Sector Management
- Introduction to Local Government
- Basic Emergency Management
- Business Case Writing
- Working for the Public
- Hydraulic Model Training
- Energy Auditor Training
- Transportation of Dangerous Goods
- Basic Gas Chlorination
- Maximo Core Training
- Microsoft Excel, Word, PowerPoint
- Adobe Captivate
- Standard of Care Training
- Confined Space
- First Aid/CPR
- Basic Hoisting and Rigging Safety
- Health and Safety for Supervisors
- Health and Safety Certification level II
- Health and Safety Professional from the IAPA -included many safety-related courses

EMPLOYMENT HISTORY:

Professor at [Durham College](#) – Water Quality Technician Program
2021-present

Contract Trainer at [Walkerton Clean Water Centre](#)
2019 - present

Various positions at [Durham Region](#)
March 1996 – present

IMS Coordinator

- Maintain the Integrated Management System (IMS, to ISO 9001, ISO 14001, HACCP and DWQMS) for Plant Operations and Maintenance Operations by updating documents, developing procedures and training operators
- Organize and participate in internal audits of the IMS
- Organize and attend external audits for the IMS including responding to findings from these audits
- Develop and present training regarding changes to existing and new provincial legislation
- Attend and record results of Management Inspections
- Organize and participate in emergency drills
- Administer the Computerized Maintenance Management System
- Seconded to a project implementing an Enterprise Maintenance Management System

Chief Maintenance Operator – IMS

- Maintained records for sampling schedules and ensured paperwork was complete and accurate
- Organized work schedules for other Maintenance Operators
- Prepared timesheets and maintained holiday schedules
- Organized summer student schedules to match staffing demands

Maintenance Operator

- Maintained and ran entire Oshawa / Whitby / Ajax / Pickering Water Supply Systems
- Developed training course for Class I Water Treatment Overview
- Involved in energy audits for water plants and pumping stations
- Collected samples and performed routine lab tests, as required
- Used a variety of computer systems to help monitor water supply
- Created reports for various departments within Durham Region

Plating Lab Technician at [AG Simpson](#)
1995 – 1996

Lab Technician / Health & Safety Assistant / Personnel Assistant at [ITT Cannon Canada](#)
1992 – 1995



CERTIFICATE OF ACHIEVEMENT

JANINE DEBOER

has successfully completed the

Internal Auditing for the Drinking Water Quality Management Standard Course

October 2 & 3, 2008

Director Approved Continuing Education Units: 1.4

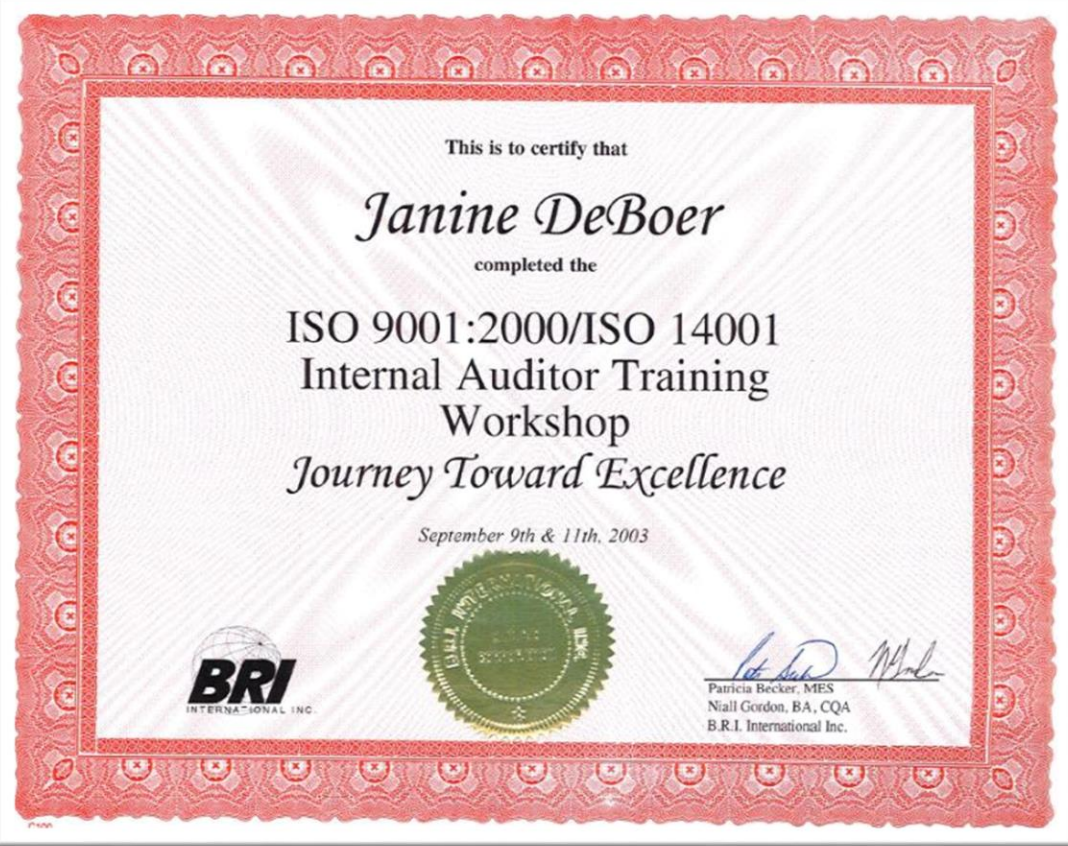
Dr. Saad Jaam, P. Eng.
Chief Executive Officer

A handwritten signature in black ink, appearing to be "S. Jaam", written over a horizontal line.

October 3, 2008

Date

www.wcwc.ca



This is to certify that

Janine DeBoer

completed the

**ISO 9001:2000/ISO 14001
Internal Auditor Training
Workshop
*Journey Toward Excellence***

September 9th & 11th, 2003



Patricia Becker, MES
Niall Gordon, BA, CQA
B.R.I. International Inc.

Two handwritten signatures in blue ink, one appearing to be "P. Becker" and the other "N. Gordon", written over a horizontal line.