

Drinking Water Quality Management Standard (DWQMS 2.0)

Internal Audit Report

For the period of:

June 9, 2022 to September 5, 2023

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 1 and 5, 2023
Report date: September 9, 2023

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 1 and 5, 2023, to determine whether it conforms to the requirements of the Drinking Water Quality Management Standard (DWQMS 2.0); and to assess whether the QMS is effectively implemented.

As the last internal audit was conducted on June 6-8, 2022, this audit focused on the period between June 9, 2022 and September 5, 2023.

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.

In any audit, 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.

Also, 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 Middlesex Centre Distribution System, Melrose Well and Birr Well Supply Systems with administrative functions audited at Komoka WWTP – 22280 Komoka Road, Delaware.

The Operational Plan for the Municipality of Middlesex Centre was reviewed for conformity to the 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.

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" – 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). Anita Petrov was also part of the internal audit team for the desktop review of documented information. Auditor qualifications are included in Appendix "C" – 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:

Culture of continual improvement

- Consistently throughout the audit, improvements were noted with regards to achieving intended outcomes of drinking water system processes and programs.
- Debrief sessions are held following the occurrence of failures, emergencies and other issues encountered with the goal of continual improvement.
- Corrective actions implemented to address system issues identified are verified for effectiveness at preventing recurrence prior to closing.
- All opportunities for improvement identified in the previous internal and external audits have been verified as completed or are in progress.

2.2 Non-Conformities

No non-conformities were noted during the audit.

2.3 Opportunities for Improvement

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

Reference	Opportunity for Improvement – Description
Director's Directions for OP's	In a future version of the OP, the date should be added to the title page.
Document & records control (El. 5)	Opportunity was identified for reviewing document references in the Operational Plan to reflect current information and document numbering.
Drinking water system (El. 6)	Opportunity to reference process flow diagrams – previously included as Appendix B in the Operational Plan, but now included only in Operations & Maintenance manuals.
Minimum training for all staff (El. 10)	Consideration should be given to developing a list of “mandatory” training staff need to maintain competency such as record keeping, sampling, watermain disinfection, etc.
Onboarding new staff (El. 10)	Consideration should be given to developing an onboarding program for new operators covering all operational duties.
Competencies (El. 10)	Periodic checks on the progress of Operators’ ongoing training could be improved.

Reference	Opportunity for Improvement – Description
Verifying quality of chemicals and parts (El. 13)	Consider establishing a procedure for verifying the quality of chemicals and parts received; training staff on that process (incl. MDWL Schedule B s.14.0) and ensuring records of this process are consistently retained.
Measurement & recording equipment list (El. 17)	Consider updating the list of measurement and recording equipment to include level milltronics (for checking and calibrating as necessary, as per MDWL Schedule C s.4.0 Calibration of CT Monitoring System).

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 Drinking Water Quality Management Standard (DWQMS 2.0).

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



Brigitte Roth, BES, EP(EMSLA)



Anita Petrov, Internal Auditor

Appendix “A” – Audit Plan

Internal Audit Start Date:		September 1, 2023					Internal Audit End Date:		September 5, 2023																
Date	Time	Auditor	Auditee	Process / Program	DWQMS Element – Standard and version: DWQMS 2.0																				
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
09-01	8:00 – 4:00	AP	Doc. Info.	Desktop review	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
09-05	8:00	BR	ALL	Opening Meeting	x																		x	x	
09-05	8:15	BR	JT	Follow-up on QMS desktop items		x		x	x	x	x	x	x	x		x	x			x	x	x	x	x	
09-05	11:30	BR	JT	Tour: Water Supply O&M – Melrose Well		x			x		x	x	x	x	x	x			x	x	x	x		x	
09-05	12:15	BR	JT	Tour: Water Supply O&M – Birr Well		x			x		x	x	x	x	x	x			x	x	x	x		x	
09-07	--	BR	EJ	QMS Rep follow-up items (remote review)		x		x	x				x	x		x	x	x	x	x				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

Auditee initials: EJ-Eric Joudrey, JT-Jocelyn Tyler, ALL-anyone interested.

Appendix “B” – Audit Checklists

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or OFI
1. <u>PLAN</u> : The OP documents a QMS that meets the requirements of the DWQMS.	Yes	Municipality of Middlesex Centre Operational Plan, last endorsed July 7, 2023.
<u>DO</u> : The OA has established and maintains the QMS in accordance with the DWQMS and the OP’s policies and procedures.	Yes	Indications of positive audit findings (POS) , non-conformities (NC’s) and opportunities for improvement (OFI’s) are listed within the applicable sections of this checklist.
<u>Director’s Directions for OP’s</u> are met, including:	Yes	Middlesex Centre Distribution System OP #052-401
Single OP for DWS(s) with same owner / OA.	Yes	Melrose Well Supply System OP #052-403
Includes version numbers and/or revision date(s).	OFI	Birr Well Supply System OP #052-404
OP title describes municipal DWS(s).	Yes	- A single OP in PDF applicable to all parts of DWS’s covered with same owner / OA
Completed <u>Subject System Description form</u> .	Yes	- Procedure for version control and page numbers on electronic copy
Audited OP’s retained for a minimum of 10 years.	Yes	- A title page that describes the municipal DWS’s covered by the OP - The completed subject system description form (latest version) - Confirmed externally audited operational plans are retained for 10 years OFI : In a future version of the OP, the date should be added to the title page.
OP available to public (hard copy or on website).	Yes	Municipality of Middlesex Centre Operational Plan accessed on September 1, 2023.
2. <u>PLAN</u> : QMS Policy includes commitments to:	--	OP s.2.0 Quality Management System (QMS) Policy, dated July 7, 2023.
a. Maintain & continually improve the QMS	Yes	
b. Provide safe drinking water to consumer	Yes	Confirmed the QMS Policy statement is available online at: Municipality of Middlesex Centre Operational Plan accessed on September 1, 2023.
c. Comply with legislation + regulations	Yes	
Is communicated to staff, owner and the public.	Yes	Note : Consider typing names of those signing the QMS policy and the Commitment and Endorsement to confirm who is signing the documents.
<u>DO</u> : The QMS established and maintained consistently meets QMS Policy commitments	Yes	
3. <u>PLAN</u> : OP contains written endorsement by Top Management – <u>and</u> – the Owner.	Yes	OP s.3.0 Commitment and Endorsement, dated July 7, 2023. Operational Plan Endorsement (by council resolution), dated July 5, 2023.
<u>DO</u> : There is evidence of Top Management commitment to an effective QMS, ensuring:	Yes	Signatures are updated within six months of changes to the personnel who hold the positions listed.

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or OFI
a) QMS in place meets the DWQMS	Yes	Owner endorsement of the Operational Plan is obtained through a council resolution within one calendar year of changes to council. OP last endorsed during Middlesex Council Meeting in 2023. Viewed 2023 DWQMS Operational Plans Endorsement Council Resolution document re: Resolution Number 2023-086, dated July 5, 2023.
b) OA staff are aware of all applicable legislative and regulatory requirements	Yes	
c) Communication about the QMS	Yes	
d) Provision of resources needed to maintain & continually improve the QMS	Yes	
Confirmed current member(s) of Top Management/current Owner have endorsed OP.	Yes	
4. <u>PLAN</u> : OP identifies QMS Representative.	Yes	Manager of Water and Wastewater is identified as the QMS Representative.
<u>DO</u> : QMS Rep authorized by Top Management to:		
a) Administer QMS processes / procedures	Yes	The Manager of Water & Wastewater Operations is appointed the role of Quality Management System (QMS) Representative for the Municipality of Middlesex Centre. Viewed the Letter of Appointment, dated July 22, 2019 re: Eric Joudrey appointed and authorized by Top Management as the QMS Rep for the Municipality for all water systems (Birr Well Supply, Melrose Well Supply and Middlesex Centre Distribution System). The appointment letter includes items a) to e) for this element.
b) Report to Top Management on QMS performance and opportunities for improvement	Yes	
c) Ensure current QMS docs always in use	Yes	
d) Ensure OA staff aware of all applicable legislative and regulatory requirements	Yes	
e) Promote QMS awareness throughout OA	Yes	
5. <u>PLAN</u> : OP includes Document & Records control procedure that describes how:	Yes	OP s.5.0 Document and Records Control QMS 05-01 Document & Record Control Procedure, dated June 19, 2023 QMS-05-03 Document Master List (Excel file) SOP 05-01 QMS - SOP Template
a) Documents required by the QMS are:	--	OP s.5.0 references QMS 05-01 Document & Record Control procedure (electronic file name includes the same). The QMS 05-01 procedure describes how documents and records are created, formatted, saved in digital format, retained and disposed-of. The reference list at the end of QMS 05-01 lists the Document Template as QMS 05-02, however it is QMS 05-01 in the electronic file name.
i. kept current, legible, readily identifiable	OFI	
ii. retrievable	Yes	
iii. stored, protected, retained, and disposed of	Yes	
b) Records required by the QMS are:	--	OFI : Opportunity was identified for reviewing document references in the Operational Plan to reflect current information and document numbering. The OP references QMS-05-03 Document Master List .
i. kept legible and readily identifiable	Yes	
ii. retrievable	Yes	

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or OFI
iii. stored, protected, retained and disposed of	Yes	<p>QMS 05-01 also describes document control features (e.g. document identification, format (with document template), media, reviews for currency) for ensuring documents are current, legible, identifiable, retrievable (e.g. Laserfiche, on N:\ , CMMS, or QMS Rep’s office), etc. The QMS Rep ensures required documents and records are where and when needed and protected (re: confidentiality, improper use, integrity), retained as long as retention times require, and disposed following that.</p> <p>The computer network is backed up preventing loss of information.</p> <p>Standard QMS formats exist for the following:</p> <ul style="list-style-type: none"> - SOP 05-01 QMS-SOP Template - QMS 10-01 On-the-Job Practical Training Form - QMS 14-01 Infrastructure Review Meeting - QMS 20-01 Management Review Meeting Template - QMS 21-01 Continual Improvement Tracking Spreadsheet - QMS 21-01 Continual Improvement Form <p>Confirmed that Jocelyn e-mails out any updates to documents and forms, keep read receipts for each – also reviews information contained in folders is current (e.g. current forms, current SOP’s, etc.).</p>
<u>DO</u> : OA conforms to the Document & Records Control procedure and ensures QMS documentation includes:	Yes	<p>As noted with availability of up-to-date OP, associated policies and procedures; SOP’s established for a number of operational activities, etc.</p> <p>Confirmed that all QMS and DWS-related records are retained for a minimum of 15 years (based on the municipality’s records retention by-law – all “environmental” records have 15 years retention time).</p>
a) OP and associated policies and procedures	Yes	
b) Documents & records needed to ensure effective planning, operation & control of operations	Yes	
c) Results of internal & external audits and management reviews.	Yes	
6. <u>PLAN</u> : a) OP documents for the DWS:	--	OP s.6.0 Drinking Water Systems
i. Name of Owner and Operating Authority	Yes	Describes owner, operating authority, drinking water system names and numbers.
ii. If DWS includes primary / secondary disinfection:	Yes	<p>This section also provides an overview of each drinking water system along with their inter-connections with other drinking water systems owned and operated by different owners and operating authorities.</p> <p>OFI: Opportunity to reference process flow diagrams – previously included as Appendix B in the Operational Plan, but now included only in Operations & Maintenance manuals.</p>
A. Description including treatment processes and distribution system components	Yes	
B. Treatment system process flow chart	OFI	
C. Water source description, including	Yes	

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or O/I
i. Raw water characteristics	Yes	Each of the DWS descriptions describe treatment system processes (chlorination), source water (wells), along with upstream water supply systems and their water sources (and high-level treatment processes). Characteristics of the raw water supply are described and event-driven fluctuations are considered (no operational challenges and no event-driven fluctuations in these well sources).
ii. Event-driven fluctuations	Yes	
iii. Operational challenges + threats	Yes	
iii. If doesn't include primary / secondary disinfection:		Each of the distribution systems (Arva, Ballymote, Delaware, Denfield, Ilderton, Komoka-Kilworth) are described in high-level re: their components and how chlorine residuals are maintained.
A. Description of the system including all distribution system components	Yes	
B. Describes procedures in place to maintain disinfection residuals	Yes	
b) If subsystem, description of the DWS it is a part of, including names of OA's for other systems	Yes	
c) if connected to other DWS by different owners, summary description of:	Yes	The water supply for the Arva Distribution System is obtained from a 1050 mm pipeline from the London distribution system. The London distribution system is owned and operated by the City of London. The Ballymote Distribution System obtains water from a 300 mm pipeline from the London distribution system. The London distribution system is owned and operated by the City of London.
i. Whether the system obtains or supplies water	Yes	
ii. Names of Owner and OA's of other systems	Yes	
iii. Identifies which system provides water to this DWS, and who is relied on for safe DW.	Yes	
<u>DO</u> : OA ensures DWS description is current.	Yes	Confirmed recent changes at the Delaware Distribution Sub-System changes were updated to reflect changes in the description.
7. <u>PLAN</u> : OP documents a risk assessment process that:	--	OP s.7.0 Risk Assessment
a) Considers Ministry's " Potential Hazardous Events... " doc (2022)	Yes	Describes source to tap focus in the risk assessment process. The updated risk assessment outcomes are presented at the next Management Review meeting for review and approval. It also describes recommended minimum CCP's relating to disinfection requirements.
b) ID's additional potential haz. events/ hazards	Yes	
c) Assesses risks associated with the occurrence of hazardous events	Yes	
d) Ranks hazardous events according to assoc. risk	Yes	
e) ID's control measures...	Yes	
f) ID's Critical Control Points	Yes	

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or O/I
g) ID’s method to verify every calendar year – currency of information + validity of assumptions	Yes	At least once every calendar year, a review of currency of information and validity of assumptions used in the risk assessment is conducted.
h) Ensures risks assessed at least once per 36 mos.	Yes	At least once every 36 months, drinking water system risks are re-assessed using the risk criteria described in this section (likelihood, consequence, detectability & response).
i) Considers reliability + redundancy of equipment	Yes	
<u>DO</u> : OA performs risk assessment per procedure	Yes	OP s.7.0 includes consideration of items a) to j) in this OP section’s summary and states that a high risk is a score of 9 or higher.
8. <u>PLAN</u> : OP documents:	--	OP s.8.0 Risk Assessment Outcomes QMS 08-02 Risk Assessment Outcomes Matrix, dated June 14, 2023
a) Potential hazardous events + hazards	Yes	OP s.8.1 describes CCP’s and CCL’s that are summarized in the table, relating to: - Primary disinfection – with CCL range of 0.8 mg/L – 3.0 mg/L - Secondary disinfection – with CCL range of 0.3 mg/L – 3.0 mg/L - Distribution system residual – with CCL range of 0.2 mg/L – 4.0 mg/L - Backflow prevention The CCL’s listed above set are in line with best practices (i.e. better than regulatory minimums / maximums). CCP procedures are linked: - CCP-801 Chlorination Control, dated Sept. 12, 2022 - CCP-802 Chlorination Control System Failure, dated Sept. 12, 2022 - CCP-802 Backflow Prevention, dated Sept. 12, 2022
b) Assessed risks associated with the occurrence of hazardous events	Yes	
c) Ranked hazardous events	Yes	
d) Control measures ...	Yes	
e) CCP’s and respective CCL’s	Yes	
f) Procedures / processes to monitor CCL’s	Yes	
g) Procedures to respond to CCL deviations	Yes	
h) Procedures for reporting + recording deviations from CCL’s.	Yes	
<u>DO</u> : OA has implemented and conforms to the procedures.	Yes	Last “calendar year” review: June 14, 2023 Last “36-month” risk assessment: July 20, 2021
9. <u>PLAN</u> : OP describes, delineates, identifies:	--	OP s.9.0 Organizational Structure, Roles, Responsibilities and Authorities
a) OA’s organizational structure including roles, responsibilities, authorities	Yes	Depicts the organizational structure and includes a table that describes responsibilities and authorities by role for Middlesex Centre’s Water & Wastewater Operations – from Owner (Mayor & Council) to Top Management (CAO and Director of PW & Engineering) to QMS Rep (Manager of Water & Wastewater Operations), ORO (Supervisor of Water & Wastewater Operations), OIC (Treatment / Distribution Operators), and OIT’s (Treatment / Distribution Operators).
b) Corporate oversight roles, responsibilities, auth’s	Yes	
c) Person(s) responsible for Management Review	Yes	
d) Person(s) w/ Top Management responsibilities	Yes	
e) Owner of the system	Yes	

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or OFI
<u>DO</u> : OA keeps the above current – and – communicates this information to staff and Owner.	Yes	Confirmed with Jocelyn that roles, responsibilities and authorities are current + communicated to staff by e-mailing responsibilities, request read receipts for e-mail; training on various topics (e.g. calibration forms + related procedure updates). E-mail on September 6, 2023 from Middlesex Centre’s Municipal Clerk (James Hutson) confirmed that the WCWC’s Responsibilities Under the Statutory Standard of Care sessions were attended by councillors on January 10, 2023 by Wayne Shipley, Hugh Aerts, John Brennan, Debbie Heffernan; and on December 12, 2022 by Frank Berze, Aina DeViet, and Sue Cates.
10. <u>PLAN</u> : OP documents:	--	OP s.10.0 Competencies
a) Competencies required for personnel performing duties directly affecting drinking water quality	Yes	Viewed the Operator Listing Report OWWCO on September 1, 2023 and noted the Operators with next expiring certificates are:
b) Activities to develop and/or maintain re: above	Yes	<ul style="list-style-type: none"> - Kirandeepkaur Saini (Op #90083704) WT 1 (Certificate #110774), expiring October 31, 2023 – confirmed scheduled to write WDS on Sept. 20, 2023. - Adrian Mitchell (Op #90077510) WDS 2 (Certificate # 101722), expiring November 30, 2023 – confirmed Class III exam passed, upgrade application (from Class II to III) coming up. - Eric Joudrey (Op #90000922) WDS OIT (Certificate # OT46315), expiring January 31, 2024 – confirmed application is in to OWWCO currently.
c) Activities ensuring staff aware of duties’ relevance + how they affect safe drinking water	OFI	<p>Confirmed requirements are on-track for renewal and/or upgrades as noted above.</p> <p>OFI: Consideration should be given to developing a list of “mandatory” training staff need to maintain competency such as record keeping, sampling, watermain disinfection etc.</p> <p>OFI: Consideration should be given to developing an onboarding program for new operators covering all operational duties.</p> <p>This can be provided by other certified operators, tracked and used for on-the-job hours, determining if further training is required, and showing how competencies are achieved.</p> <p>Brian Watson is ORO, has a Class III WDS and the highest class of system is Class II. Confirmed those with ORO and/or OIC roles have required certification.</p>
<u>DO</u> : OA undertakes activities to: a) meet / maintain personnel competencies re: DW quality + have records	OFI	Competencies and training are tracked using Compliance 365 on an ongoing basis.
b) ensure personnel aware of duties’ relevance + how they affect safe DW + have records	Yes	OFI : Periodic checks on the progress of Operator’s ongoing training could be improved.

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or O/I
11. <u>PLAN</u> : OP documents a procedure to ensure sufficient personnel meeting identified competencies are available for duties that affect DW quality	Yes	OP s.11 Personnel Coverage
<u>DO</u> : OA implemented and conforms to the procedure.	Yes	<p>Describes coverage by water operations staff during regular hours, off-hours / on-call coverage, ORO duty and ORO qualifications for back-up. After-hours / weekends / statutory holiday coverage is described: SCADA, texts of alarms to water staff, OIC on standby based on weekly rotation, 24-hour answering service available to the public. Emergency and vacation coverage is ensured by the ORO.</p> <p>Includes consideration of continuity of operations (e.g. pandemic coverage) strategies such as physical separation of staff, remote work options, independent work carried-out and/or regulatory relief from the MECP for out-of-ordinary conditions.</p> <p>Reviewed on-call coverage, OIC or ORO designations – to ensure all is in line with regs. Discussed when OIT’s are on staff and go on-call and they are supported by the ORO over phone, as applicable. There are currently no OIT’s on staff.</p> <p>Confirmed reference to O. Reg. 128/04 re: rules and expectations in personnel coverage for short-staffing scenarios (e.g. pandemics, strikes and lockouts).</p>
12. <u>PLAN</u> : OP documents procedure for communications re: how relevant aspects of QMS are communicated between top management and:		OP s.12 Communications QMS 12-01 Communications procedure, dated July 16, 2022
a) the Owner	Yes	Examples of communications in the past year with the owner :
b) OA personnel	Yes	- DWQMS OP Endorsement reports (# PWE-32-2022, dated Aug. 3, 2022), and (#PWE-32-2023, dated June 23, 2023);
c) Suppliers identified as “essential”	Yes	- via WCWC’s standard of care courses on Jan. 10, 2023 + Dec. 12, 2022;
d) the public	Yes	- E-mail re: precautionary BWA on May 19, 2023 re: NDOG EC/TC sample results from Birr Water System;
<u>DO</u> : OA implemented and conforms to procedure.	Yes	<p>- MECP Inspection Results (Report #PWE-39-2022, dated Nov. 2, 2022)</p> <p>- 2022 DWQMS Annual Audit Summary and Management Review Meeting findings (Report PWE-40-2022, dated November 2, 2022).</p> <p>During the on-site tours portion of the audit (September 5, 2023), noted communications with staff via logbook entries (by Kirandeep Saini at Melrose and by Jerdan Small Phillips at Birr Well on Sept. 5, 2023), completed operational logs, work orders completed. Communications with staff are achieved through on-the-job training as well as through e-mail with “read receipts” requested by Jocelyn.</p> <p>Reviewed the Essential Supplier Communications completed in September 2022 by Eric Joudrey via e-mail. The e-mail communications summarized that each supplier contacted is identified as an essential supplier / contractor for the</p>

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or OFl
		municipality, and the municipality has a DWQMS in place and QMS Policy attached. The e-mail requested confirmation that they reviewed the QMS Policy. The municipality’s Development Information Middlesex Centre webpage includes design standards as well as specifications related to various infrastructure projects. The Water By-Law: Regulation of Water Supply (2018-028) Middlesex Centre provides the public and contractors rules by which water supply is regulated within the municipality. Middlesex-Centre’s Water Middlesex Centre webpage includes communications on a variety of topics, including water quality details under the Water Supply Middlesex Centre section .
13. <u>PLAN</u> : OP identifies / includes:	--	OP s.13.0 Essential Supplies and Services Essential Supply or Service List, last updated September 9, 2022
a) All supplies / services essential for safe DW and for each: means for procurement	Yes	The Essential Supply or Service List describes by essential supply or service type, how procurement of supplies or services are ensured and their quality requirements. The Communications re: QMS Policy commitments is tracked pg. 4. Discussed issues with supply chain disruptions – some backlogs currently, Hach has improved.
b) Procedure OA ensures quality of essential supplies / services	Yes	
<u>DO</u> : OA implemented and conforms to procedure.	OFl	Viewed the Chemical Inventory spreadsheet – tracking: dates received, chemicals received, lot numbers, manufactured date volumes, # of received, total volumes, bill of lading #'s, product numbers, and who the chemicals were received by. Operators verify quality requirements of received chemicals are met with each delivery and documentation retained on file. Discussed CAR initiated #2023-04 re: failed fittings. Opportunity identified for establishing a procedure for verifying quality of chemicals and parts process. OFl : Consider establishing a procedure for verifying the quality of chemicals and parts received; training staff on that process (incl. MDWL Schedule B s.14.0) and ensuring records of this process are consistently retained.
14. <u>PLAN</u> : OP procedure for reviewing the adequacy of infrastructure necessary to operate & maintain the DWS.	Yes	OP s.14.0 Review and Provision of Infrastructure
a) Considers outcomes of risk assessment	Yes	States that at least once per calendar year, the Water & Wastewater division prepares capital and operational budgets and presents these to council. Capital budget items are selected through risk-based decisions by reviewing the latest risk assessment outcomes, any issues relating to the DWS’s reliability and redundancy, infrastructure conditions (e.g. age, failure, material, sizing, etc.) and any long-term infrastructure and asset management plans available.
b) Ensures that the adequacy of the infrastructure necessary to operate and maintain the DWS is reviewed at least once per calendar year	Yes	

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or OFl
		<p>The Director of PW and Manager of Water & Wastewater Operations review the project plan to update infrastructure priorities, considering: official plans, previous priority lists, engineering assessments, MECP inspection reports, flow data trends, water quality reports, operators’ suggestions, risk assessment outcomes and maintenance records.</p> <p>Middlesex Centre’s Water Long-Range Financial Plan by BMA Management Consulting Inc., dated April 2021 (accessed at: 2021 Middlesex Centre report - v4.pub) fulfills one of the five parts of the municipality’s Municipal Drinking Water Licences. It describes a list of forecast water capital projects (and for the near-term larger budgets relate to: water supply interconnection, watermain replacement and twinning, general watermains replacement, servicing of Tunks Lane, LHPWSS connection, equipment improvements, SCADA replacement, Water Master Plan (confirmed via discussion this is known as the Master Servicing Plan – all infrastructure re: Water, Wastewater, Storm and Curbside pick-up – broken into tech memos for each infrastructure discipline)).</p> <p>Reviewed Middlesex Centre’s Capital Budget 2022-2031 that lists forecasted capital projects included in the municipality’s Financial Plan and their timeframe / amounts invested by year.</p> <p>Last “calendar year” review: fall 2022, for the Budget 2023 presentation</p>
<u>DO</u> : OA implemented and conforms to procedure and communicates findings of the review to the owner.		<p>Last reported to owner: Middlesex Centre Budget 2023, January 11, 2023</p> <p>New council was sworn-in Fall of 2022; therefore budget was delayed to January.</p>
<p>15. <u>PLAN</u>: OP docs:</p> <p>a) A summary of the OA’s infrastructure maintenance, rehabilitation & renewal programs</p>	Yes	<p>OP s.15.0 Infrastructure Maintenance, Rehabilitation and Renewal</p> <p>The summary of maintenance, rehabilitation and renewal programs are available through Middlesex Centre’s WO system (currently Hach Job Plus program) and asset management plan. Confirming the municipality is transitioning to a new program through Asset Management.</p> <p>PM’s are included in the WO system and are scheduled with reminders to carry-out activities at their required timelines. Records of PM’s are kept with the WO. PM program is based on compliance obligations and OEM recommendations included as part of equipment manuals.</p> <p>Service agreements exist with qualified contractors for priority items such as SCADA system maintenance and calibration services for measurement instrumentation. When equipment or systems break down, reactive maintenance is carried-out and records are maintained using “Annual Maintenance Summary” and deviations from normal operating conditions are recorded in logbooks.</p> <p>No overdue items for water.</p>

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or O/I
b) a long-term forecast of major infrastructure maintenance, rehabilitation + renewal activities	Yes	Larger and longer-term maintenance activities are carried out less frequently (e.g. pump rehabilitation and reservoir cleaning) – and are tracked through asset management plans. The annual budget process and annual water quality reports capture the summaries of and effectiveness of regular and long-term infrastructure maintenance, rehabilitation and renewal programs. Viewed example in WO system – e.g. Tank Holding Inspection – Every 5 years (can insert how many days between the work order spacing).
DO: OA shall:	--	
a) keep current: summary of infrastructure maintenance, rehabilitation & renewal programs	Yes	Jocelyn updates the WO system with new information – with same equipment and work order number – notes are updated in “Task Instructions” section – viewed for the Hach DR300 Colorimeter implemented in 2022. Supervisor / ORO will update infrastructure equipment (e.g. new pumps) in the system, Form 2 is also completed and an annual maintenance document is updated as well.
b) ensure that the long-term forecast is reviewed at least once every calendar year	Yes	Through the preparation of budgets every year.
c) communicate the programs to the owner	Yes	The Water & Wastewater Operations division communicates the summary of and reports on the effectiveness of regular and long-term infrastructure maintenance, rehabilitation and renewal programs to Middlesex Centre council at least once per calendar year through the annual budget process and through annual water quality reports. Last communicated to owner: Middlesex Centre Budget 2023, January 11, 2023 New council was sworn-in Fall of 2022; therefore, budget was delayed to January.
d) monitor the effectiveness of the maintenance program.	Yes	The budget report above includes a section on achievements, and annual water quality reports capture summaries of regular and long-term major maintenance, rehabilitation and renewal programs.
16. PLAN : OP documents / describes:	--	OP s.16.0 Sampling, Testing and Monitoring
a) Sampling, testing, monitoring procedure for process control + finished DW quality incl. requirements for sampling, testing and monitoring at the conditions most challenging to the DWS	Yes	OP s.16 states sampling, testing and monitoring programs are carried out to provide operators with knowledge to proactively operate the DWS, ensure water quality is maintained and ensure compliance obligations are met. ORO and QMS Rep plan sampling requirements that are carried-out by operational staff. All staff who sample, test, and monitor for water quality have received appropriate training and are qualified to do so. References the sampling calendar for all water systems’ sampling requirements (bacteriological and chemical), with results reported through Watertrax.

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or OFI
		<p>SCADA provides continuous monitoring with analyzers recording data of CCP's (e.g. turbidity and free chlorine residual) at the POE into the distribution system. Operator on duty verifies online continuous monitoring equipment's accuracy against bench-top results and makes adjustments as necessary.</p> <p>Additional sampling may be conducted for challenging conditions (e.g. watermain break repairs and related to construction activities).</p> <p>Distribution samples are collected at points throughout the distribution system and tested for free chlorine residual –collected for bacteriological analysis on a weekly basis, and for THM's, HAA's, Nitrates / Nitrites on a quarterly basis. Twice annually, lead sampling programs resume, and annually -samples are collected for raw water parameters for limited groundwater systems – as well as monthly raw water samples taken the first week of each month.</p> <p>Reviewed the 2023 Sampling Calendars for each system – discussed with Jocelyn Tyler the calculation of bacteriological samples taken based on population served – confirmed it reflects O. Reg. 170/03 requirements (reflects population served, cross-referenced number of samples, tests, and required monitoring requirements are reflected).</p> <p>Discussed conditions most challenging (e.g. chlorine residuals, THM's and HAA's) – target certain areas to monitor for these. Sodium exceedances every 60 months, as is the case with groundwater well sources – exceed the reporting threshold but not the health standards.</p>
b) Relevant sampling, testing or monitoring activities, if any, that take place upstream ...	Yes	Relevant sampling, testing and monitoring activities that take place upstream of Middlesex Centre's drinking water systems are carried out by the Lake Huron Primary Water Supply System and the City of London. Results are communicated with owner and the public via A&S Reports or more immediately following AWQI's.
c) How sampling, testing and monitoring results are recorded and shared with the owner	Yes	<p>Records of sampling, testing and monitoring activities are stored in Watertrax, Laserfiche and N:\ drive with test results provided by accredited labs – reviewed by QMS Rep to ensure compliance obligations and safe drinking water quality requirements are consistently met.</p> <p>Confirmed most recent Annual & Summary Reports available online at: https://www.middlesexcentre.on.ca/municipal-serviceswater/water-supply accessed on September 1, 2023.</p> <p>Confirmed these were shared via the Middlesex Centre Council Agenda - Regular Meeting of Council, for March 15, 2023</p>
DO: OA implemented and conforms to procedure.	Yes	

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or OFI
17. <u>PLAN</u> : OP documents a procedure for the calibration and maintenance of measurement and recording equipment.	Yes	OP s.17.0 Measurement and Recording Equipment Calibration and Maintenance
<u>DO</u> : OA implemented and conforms to procedure.	OFI	Viewed the SpecCheck DPD-Chlorine-LR Secondary Standard (Lot # A3095), expiring April 2025 . Confirmed the Certificate of Analysis sheet for the SpecCheck verification standards are written on the outside of the container (reflecting the current Lot #'s acceptable tolerances) – confirmed this information are recorded on the verification forms completed by team members. Viewed the pH buffer solutions in use and noted their expiry dates have not passed (2024 and 2025 expiries). Viewed the measurement and recording equipment list (i.e. anything involved in monitoring CT, as well as handheld devices: colorimeters, turbidimeters and pH meters). OFI : Consider updating the list of measurement and recording equipment to include level milltronics (for checking and calibrating as necessary, as per MDWL Schedule C s.4.0 Calibration of CT Monitoring System). During the site tours on September 5, 2023, noted process and regulatory analyzers in-place and discussed with Jocelyn the regulatory analyzers are verified / calibrated regularly as prompted through the schedule / WO system. Noted flow meter calibrations with labels placed by third party, SCG in Oct/Nov. 2022 (due Oct./Nov. 2023, depending on the site).
18. <u>PLAN</u> : OP docs procedure to maintain a state of emergency preparedness that includes:	--	OP s.18.0 Emergency Management
a) A list of potential emergency situations or service interruptions	Yes	Describes how Middlesex Centre maintains a state of emergency preparedness by incorporating required items a) to f) – and linking to risk assessment outcomes, water emergency response plans, emergency training and testing, the municipality’s emergency response plan and the up-to-date list of emergency contacts.
b) Processes for emergency response + recovery	Yes	References EMO’s five core components of emergency management: prevention, mitigation, preparedness, response, and recovery.
c) Emergency response training + testing requirements	Yes	Reviewed the file related to the latest emergency training and test exercise, on June 14, 2023 regarding a cybersecurity threat. Also Debrief records involving all staff in the review re: Auto-flusher flooding, dated February 14, 2023 – confirming the situation, actions taken, any monitoring; April 24, 2023 re: Komoka Tower Overflow Level – in prep of LHPWSS, updated SCADA setpoints to reflect temporary situation.

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or OFI
d) Owner and OA responsibilities during emergency situations	Yes	Level 3 Emergencies will require coordination between Operating Authority Emergency Response Plan and Owners Emergency Response Plan (listed in chart, OP s. 18.0)
e) Ref's municipal emergency planning measures	Yes	
f) Emergency communications protocol + up-to-date list of emergency contacts	Yes	
<u>DQ</u> : OA implemented and conforms to procedure.	Yes	
19. <u>PLAN</u> : OP documents a procedure for internal audits that:	--	OP s.19.0 Internal Audits
a) Evaluates conformity of the QMS with the requirements of the DWQMS	Yes	
b) Identifies internal audit criteria, frequency, scope, methodology + record-keeping requirements.	Yes	
c) Considers previous internal and external audit results, and	Yes	<p>Reviewed the last External Audit Report by NSF-ISR, dated September 13, 2022, and OFI's were identified (Status updates are in red):</p> <ul style="list-style-type: none"> - OFI – El. 5 – An opportunity exists to review electronic filenames / identifiers to ensure consistency, e.g. CIFs (Confirmed ongoing – relates to an OFI identified in El. 5 this audit regarding consistency of references – noted section re: Digital File Identifiers in the procedure for consistency in format – document number, title, form / record / procedure, month and year of current revision) - OFI – El. 13 – an opportunity exists to review suppliers / service providers identified in the ERP and Essential Supplier List for clarity / consistency, e.g. Nichol Water Services. (ongoing – awaiting action by management) - OFI – El. 17 – An opportunity exists to obtain certificates of calibration from suppliers when purchasing new instruments, e.g. Pocket Colorimeters (Received for all current devices) - OFI – El. 21 – an opportunity exists to clearly distinguish between corrective and preventive actions (Now described in the procedure, definitions are included – noted in the tracking spreadsheet for preventive action as well) <p>Reviewed the Internal Audit Report by Acclains Environmental, dated June 12, 2022, and OFI's were identified (Status updates are in red):</p>

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or OFI
		<ul style="list-style-type: none"> - OFI – El. 2 – Consider placing the text of the QMS Policy commitments online. (Confirmed completed during this audit's desktop review) - OFI – El. 5 – documentation that duplicates or includes conflicting information with what's contained in the latest version of the Operational Plan. (Closed – the larger issues of duplication / conflicting information were addressed, an OFI is identified this audit to update some references) - OFI – El. 5 – need to customize SOP's to better reflect Middlesex Centre's activities and changes. (Ongoing) - OFI – El. 8 – update the MECP listing included on page 5 of Middlesex Centre's Risk Assessment Outcomes and update hazardous event reference for “cybersecurity”. (Risk Assessment Outcomes now include cybersecurity threat) - OFI – El. 11/18 – the reference regarding “proposed” changes in OP s.11.0 should be corrected. (Confirmed completed in the desktop review) - link to OnWARN's Continuity of Operations protocol that describes the requirements related to the use of Emergency Substitute Operators.. (Includes reference to O. Reg. 128/04 section on emergency situations: pandemics, strikes and lockouts / labour disruptions) - OFI – El. 12 – Consider communicating relevant quality requirements for essential suppliers to follow (e.g. MDWL Schedule B s.14.0 Chemicals and Materials) – and establishing a verification process of all essential suppliers' conformity with quality requirements (e.g. lab accreditations, licences, and chemical / parts suppliers' NSF 60, 61, 372 certifications, supply volumes, frequency of delivery, CofA's, etc.). (Contracts with essential suppliers (e.g. parts and chemicals) are in development) - OFI – El. 13 – Consider a different essential supply or service table layout confirming by essential supply or service type, who is the primary and back-up supplier for each (including contact information) as well as how procurement is ensured and their quality requirements. (Ongoing)
d) Describes how QMS corrective actions are identified and initiated.	Yes	Any non-conformities and opportunities for improvement identified through the internal audit are recorded in the continual improvement report and tracking system established under section 21.0. A future internal and external audit will review the effectiveness of these actions taken.
<u>DO</u> : OA implemented & conforms to procedure + ensures internal audits are conducted at least once/calendar year	Yes	
20. <u>PLAN</u> : OP docs a procedure for management review that evaluates the continuing suitability, adequacy and	Yes	OP s.20.0 Management Review

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or OFI
effectiveness of the QMS and that includes consideration of:		2022 Management Review Meeting presentation, dated October 18, 2022. Management Review Meeting minutes, dated October 18, 2022
a) Incidents of regulatory non-compliance	Yes	Sample not delivered to lab on time that was collected in the Middlesex Centre Distribution System. (Operators now taking a photo of chains of custody) Post inspection sample was not collected for total coliforms after a reservoir was inspected. (Verification water samples are collected and tested for TC per AWWA) On-site logbooks and data collection sheets were not being completed in a chronological order. (Monthly review of records completed by Compliance Coord.)
b) Incidents of adverse drinking water tests		AWQI# 154599 – weekly water sample was not taken to lab in the proper timeframe. AWQI# 154942 – Ballymote – watermain break, loss of supply for 33 hrs. BWA. AWQI# 157675 – Birr - elevated levels of sodium in the drinking water. AWQI# 157676 - Melrose - elevated levels of sodium in the drinking water. Forms 2A and 2B completed and closed with MECP.
c) Deviations from CCP limits and response actions		0 deviations to report
d) The effectiveness of the risk assessment process		Risk assessment annual review was conducted July 13, 2022; tracked changes – high level edits summarized.
e) Internal and third-party audit results		Summary of internal and external audit OFI's identified – all were addressed (except verification for essential suppliers and related table layout).
f) Results of emergency response testing		Emergency training & test conducted on May 4, 2022 related to watermain disinfection procedure.
g) Operational performance		All DWS performance is reviewed on a daily basis. MECP inspection results by drinking water system name. No actions items from last management meeting.
h) Raw water supply + drinking water quality trends		Reviewed on a quarterly basis for the well systems. Annual well inspections. Water quality trends monitored through analytical data and tracked in database.
i) Follow-up on action items from previous management reviews		No follow-up actions items from last management meeting.
j) The status of management action items identified between reviews		No management actions items from last management meeting.
k) Changes that could affect the QMS		Town of Delaware will be receiving water from Komoka, new booster pump station at Delaware standpipe – once active – changes to s.6, 7, 8, 13, 17 in OP.
l) Consumer feedback		5 pressure complaints; 2 colour complaints; 3 taste complaints

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or O/I
m) Resources needed to maintain the QMS		No additional resources for QMS
n) Results of the infrastructure review		5-year and 10-year capital budget; annual operational budget – monthly reviews of budget actuals and progress completed by Operations Manager – quarterly reviews by SMT.
o) OP currency, content and updates, and		OP audited by NSF in September 2022 no action items related to the OP
p) Staff suggestions		No staff suggestions.
<u>DO</u> : Top management implemented and conforms to the procedure, and:	Yes	As noted above / below; and confirmed designated members of top management were in attendance: Michael Di Lullo, CAO and Robert Cascaden, Director of PWE
a) Ensures that a management review is conducted at least once every calendar year	Yes	
b) Considers the results of the management review, identifies deficiencies + related action items	Yes	
c) Records management review decisions and action items including personnel responsible... + proposed timelines for implementation	Yes	e.g. reporting results of the Management Review to the Owner
d) Reports the results of management review, the identified deficiencies + action items to Owner	Yes	Staff Report PWE-40-2022 presented to council Nov. 2, 2022
21. <u>PLAN</u> : OA has a procedure for tracking and measuring continual improvement of QMS by	Yes	QMS 21-01 Continual improvement tracking spreadsheet
a) Reviewing and considering applicable BMP's, incl. any published by the Ministry at least once every 36 months.	Yes	Jocelyn reviews online on a weekly basis at Ontario MECP website, on Gazette, on ERO, participates in DWQMS meetings and workshops.
b) Documenting a process for identification + mgmt. of QMS corrective actions that includes:	Yes	Corrective actions logged in QMS 21-01 in the last year to address AWQI's, Inspections – e.g. in 2022: Training on AWWA standards for post verification bacteriological samples, distribution residuals recorded and in 2023 AWQI re: NDOGN sample result, BWA should have been issued.
i. Investigating cause(s) of identified NC's	Yes	Noted root causes are recorded for corrective actions initiated (e.g. MECP inspection findings, AWQI's).
ii. Documenting actions taken to correct NC's and prevent NC's from recurring	Yes	Noted actions taken to correct & prevent NC's are documented.
iii. Reviewing actions taken... verifying they are implemented and effective...	Yes	Noted preventive actions to prevent recurrence are also recorded. Date confirmed effective and confirmed effective by columns are completed.

Summary of DWQMS 2.0 Requirement (Condition Expected)	Evaluation “Yes”, “No” or “NA”	EVIDENCE REVIEWED & Auditor Comments (Condition Found) – If Evaluation is “No” may be NC or OFI
c) Doc. a process for identifying + implementing preventive actions to eliminate the occurrence of potential QMS non-conformities that includes:	Yes	Examples of preventive actions: 2022: layer of silt in reservoir bottom, well cap seals to be replaced; 2023: low pressure event.
i. Reviewing potential NC’s identified to determine if PA’s may be necessary	Yes	Noted a column named “Preventive Actions To Be Taken” added to QMS 21-01 to document additional PA’s to be taken (as applicable).
ii. Documenting the outcome of the review, incl. any actions to be taken to prevent a NC from occurring	Yes	Actions taken are recorded for each, as applicable.
iii. Reviewing actions taken...verifying they are implemented and effective...	Yes	Noted date confirmed effective and confirmed effective by columns are completed.
<u>DO</u> : OA continually improved the effectiveness of its QMS by implementing and conforming to the continual improvement procedure.	Yes	Throughout this checklist, documented several actions taken in recent years on the ways in which the effectiveness of the QMS has improved.

Please note: staff interviews were not conducted with team members this internal audit due to staff shortages and construction delays experienced during the “on-site” day of the internal audit, and therefore, no interview worksheets were completed as a part of this report.
 Notes recorded in the DWQMS Checklist are from conversations with Jocelyn Tyler and follow-up items provided by Eric Joudrey.

Process:	Auditee(s):	Audit Date:
<p>1.0 Who? (s. 2, 3-4, 10)</p> <p>1.1 What are the competencies for these duties?</p> <p>1.2 What types of activities can develop competencies / experience?</p> <p>1.3 Do staff involved know how their duties affect drinking water quantity / quality?</p> <p>1.4 Do staff know what the quality policy states?</p> <p>a. 1.5 How do staff know what legal requirements apply to their tasks?</p>	<p>4.0 Process Under Control? (s. 5, 17)</p> <p>4.1 Do you rely on documents to provide details of what tasks are required?</p> <p>a. SOPs? Forms? WO’s? MRF’s? Standards or Guidelines?</p> <p>b. Are they current / legible / identifiable / retrievable / stored / protected / retained?</p> <p>4.2 Are documents disposed of? Why? When?</p> <p>4.3 Does the work area appear safe, organized and clean?</p>	<p>6.0 Adequate Resources? (s. 9, 11, 13, 14-15)</p> <p>6.1 What are the different roles and responsibilities involved?</p> <p>6.2 What are the resources required to carry out this/these tasks? Such as:</p> <p>a. Staff (and adequate staff coverage)</p> <p>b. Supplies</p> <p>c. Equipment</p> <p>d. Facilities / space</p> <p>6.3 Are there enough resources?</p> <p>6.4 re there special requirements for the resources?</p> <p>a. How do we ensure the quality of supplies / equipment?</p>
<p>2.0 Process Input?</p> <p>2.1 What are your process inputs?</p> <p>a. Legal/other requirements</p> <p>b. Work orders or maintenance requests</p> <p>c. Internal or external customers</p> <p>2.2 Is there a “previous process step” that feeds into this one?</p> <p>2.3 Are you happy with the supplies / data / information provided by the previous step?</p>	<p>4.4 If resources include measurement and recording equipment, is this equipment calibrated and maintained? How?</p>	<p>7.0 Output? (s. 5)</p> <p>7.1 What is the output of your process?</p> <p>7.2 What records do you produce?</p> <p>a. Are they legible / identifiable / retrievable / stored / protected / retained?</p> <p>b. Are they complete?</p> <p>7.3 Are records disposed of? Why? When?</p>
<p>3.0 Measured? (s. 8, 12, 16)</p> <p>3.1 What things do you check, sample, monitor or test?</p> <p>3.2 Where do you record results? Are records complete?</p> <p>3.3 Is the information reviewed, analyzed or checked for effectiveness (in meeting requirements)?</p> <p>3.4 Do you communicate results? To whom? verbally? In Writing?</p>	<p>5.0 What If Out-of-Control? (s. 7-8, 12, 18)</p> <p>5.1 What types of things can go wrong? (out-of-ordinary / emergencies / service interruptions)</p> <p>5.2 What actions are taken when they do go wrong?</p> <p>5.3 What notifications? To whom?</p> <p>5.4 What do you document? Where?</p> <p>5.5 Is there an emergency contact list? Is it maintained?</p>	<p>8.0 Stakeholder Satisfaction? (s. 12, 20)</p> <p>8.1 Are relevant stakeholders satisfied with this work?</p> <p>a. internal / external customers,</p> <p>b. government agencies,</p> <p>c. public,</p> <p>d. owner,</p> <p>e. top management</p> <p>8.2 How do you know?</p> <p>9.0 Evidence of Continual Improvement? (s. 21)</p> <p>9.1 What are some improvements related to this process that you have seen / implemented in the past year?</p> <p>9.2 Is there anything you’d like to change about this process?</p>

Appendix "C" – Auditor CV and Training Certificates

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

SUMMARY:

A management systems, compliance and risk management professional with over 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
- Introduction to Audits for Leadership Roles
- Introduction to Audits for Operators
- 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 [CASE](#)

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: Anita Petrov

SUMMARY:

A Certification and Training Specialist, with both the Certification Office and various municipalities, with 34 years' experience in:

- evaluating and issuing certificate/licence upgrades for operators in Ontario
- evaluating and renewing certificates/licences for operators in Ontario
- reviewing operators' files for exam eligibility, corresponding with operators, sourcing examination sites scheduling exams annually and preparing and couriering exams to proctors
- proctoring exams
- assisting in developing database for the Certification Program as well as for various municipalities to maintain records pertaining to O. Reg. 128/04 and O. Reg.129/04
- achieving legislative compliance
- developing succession plans
- training on O. Reg 128/04 and O. Reg. 129/04
- developing individual training plans for operator certification upgrading
- planning annual training calendars for both operational and H&S training
- budgeting
- reporting to MECP inspectors and external auditors
- maintaining all regulatory records pertaining to certification
- participated in all internal/external audits and MECP inspections over a 16-year period

As a Business Administration professional, Anita has multiple years of experience with OWWCO (previously OETC) performing all positions; and as a consultant, has assisted numerous municipalities in developing a training and certification program to maintain compliance and for 16 years as the Training and Certification Specialist with the City of Guelph.

EDUCATION & KEY TRAINING:

1996, Business Administration – Mohawk College

2023, Operator Ethics – WCWC

2022, Entry Level Course for Drinking Water Operators – WCWC

2022, Operation of WWT Plants Vol. 1 – California State

2022, Operation and Maintenance of WWC Systems – California State

2020, DWQMS – Acclaims Environmental

2018, ISO 14001:2015 EMS for Water and Wastewater Utilities – Acclaims Environmental

2017, Responsibilities Under the Statutory Standard of Care – Safe Drinking Water Act – WCWC

2013, Safe Drinking Water Act & Related Regulations

2011, Safe Drinking Water – Lessons from Outbreaks - WCWC

2011, Source and Distribution Water Sampling – Maxxam

2009, Water Distribution 1&2 Exam Prep course – WWOTC

2009, Water Treatment 1&2 Exam Prep course – WWOTC

EMPLOYMENT HISTORY:

Principal Consultant at AP Environmental

February 2023 – present

- contract internal auditor for the Drinking Water Quality Management Standard (2017).
- training development on O. Reg. 128/04 and O. Reg. 129/04.
- client support for Operator Certification and Licensing program requirements.
- set-up systems for Operator onboarding, training, and competency tracking programs.

Water/Wastewater Certification Specialist at City of Guelph

October 2005 (as a consultant until May 2011) – August 2022

Maintained compliance with O. Reg. 128/04 and O. Reg. 129/04:

- monitored, reviewed, interpreted, summarized and implemented all legislative requirements regarding MECP Water licensing/compliance for all staff.
- coordinated training operational programs for all staff including H&S and corporate policy review.
- identified training needs for new and existing staff.
- advised managers and supervisors on training options.
- completed and submitted all required documentation for licensing of operational staff.
- performed training audits.
- developed individual progress plans for operators' upgrades.
- prepared annual training budget.
- developed succession plan for business continuity.
- participated in all internal audits and MECP inspections.
- prepared and presented bi-annual reports to management on operator training progress.
- updated and maintained division's database to ensure compliance with all legislation and regulations.

Consultant at AP Environmental (City of Vaughan/Town of Whitchurch-Stouffville)

September 2005 – 2010

- developed and implemented a plan for training and maintaining records to ensure compliance with regulations pertaining to licensing of operators.
- trained staff on O. Reg. 128/04 and O. Reg. 129/04.
- trained staff and completed all applications for licensing.
- developed a database for the purpose of all record keeping pertaining to licensing.
- advised on training requirements and scheduled all operator training.

Renewal/Exam and Upgrade Coordinator at OETC (now OWWCO)

July 1989 – July 2005

- evaluated and issued renewed certificates/licences to operators in Ontario.
- evaluated and issued upgraded certificates/licences to operators in Ontario.
- evaluated applications for all exams OIT – level 4 in all 4 categories.
- corresponded with operators/management/training providers/inspectors and MECP.
- scheduled exams throughout province/prepared exams and couriered to proctors.
- proctored exams.



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CERTIFICATE OF ACHIEVEMENT

Anita Petrov

has successfully completed the

**ISO 14001:2015 – Environmental Management Systems for
Water and Wastewater Utilities course**

on December 18, 2018

Brigitte Roth

Brigitte Roth
Principal Consultant
www.acclaims.ca

DECEMBER 19, 2018

Date

Course length / on-the-job practical time: 7 hours



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CERTIFICATE OF ACHIEVEMENT

Anita Petrov

has successfully completed the

**Facilitated DWQMS Internal Audit
on-the-job training**

February 7, 10, 13, 15, 2023

Brigitte Roth

Brigitte Roth
Principal Consultant
www.acclaims.ca

FEBRUARY 17, 2023

Date

Includes 14 on-the-job hours