

# Using Management Reviews to Drive Improvement

Breakout session	Using Management Reviews to Drive Improvement
<b>Facilitator</b>	Brigitte Roth, Acclaims Environmental Inc.
<b>Summary</b>	<p>The purpose of Management Review is to evaluate the continuing suitability, adequacy and effectiveness of your QMS.</p> <p>Information commonly reported through Management Review is not quite achieving the intended meeting purpose nor improvement.</p> <p>This session discussed common pitfalls, brainstormed on opportunities and summarized best practices for effective Management Reviews</p>
<b>Methodology</b>	<p>This session used the <a href="#">Think-Write-Pair-Share</a> brainstorming technique that provides participants with time to individually think about the ways in which the information commonly reported items at management reviews can be improved. Then, when paired with another participant or in a small group, participants discussed their experiences and shared the ideas using <a href="#">Mentimeter</a>, an online platform that allows for anonymous submissions.</p>
<b>Session outcomes:</b> Here is a summary of session results from discussions:	
<b>a) Incidents of regulatory non-compliance</b>	<p><b>Commonly reported: Latest MECP inspection dates, % score, # of NC's, # of Recommendations / BMP's. Additional considerations:</b></p> <ul style="list-style-type: none"> <li>○ Issues identified internally: data issues, communications failures, other NC's</li> <li>○ Status on non-compliances identified: root cause analyses and corrective actions and whether the actions have been addressed and verified effective</li> <li>○ Preventive actions taken to prevent recurrences, or occurrences elsewhere</li> <li>○ Possible conditions that led to the non-compliances and recommendations</li> <li>○ Questions from inspector</li> <li>○ Lessons learned, context for inspection scores</li> <li>○ Statistics / trending to prove compliance performance – getting better or worse</li> <li>○ Repeats from previous inspections or notes in the inspection report to discuss</li> <li>○ Any actions taken on recommendations / BMP's recommended</li> <li>○ Reasons why actions are not taken on recommendations / BMP's recommended</li> <li>○ Any exceedance not immediately reportable</li> <li>○ Any missed deadlines or reporting deadlines</li> <li>○ Audit items that could become compliance issues</li> <li>○ Abnormal observations, maintenance non-compliances (cmms)</li> <li>○ Near misses with debrief</li> <li>○ Communications to council? Any (potential) impacts to the public?</li> <li>○ Updates to SOP's or forms from non-compliances? New SOP's / Forms to prevent future issues?</li> <li>○ Would the MECP post common NC's found in all types of systems for others to review and determine if these could pertain to them?</li> </ul>

Breakout session	Using Management Reviews to Drive Improvement
<p><b>b) Incidents of adverse drinking water tests</b></p>	<p><b>Commonly reported: # of AWQI's by type, CA's taken, dates closed. Additional considerations:</b></p> <ul style="list-style-type: none"> <li>○ Locations of AWQI's</li> <li>○ Trends, historical comparison, categorization by subsystem</li> <li>○ Any BWA's or DWA's issued with the AWQI's? Debrief on those events?</li> <li>○ Table of all information clearly to present</li> <li>○ Root cause analyses of AWQI's, time to resolve, process optimization</li> <li>○ Preventive actions to prevent recurrences</li> <li>○ Link AWQI statistics with the risk assessment process</li> <li>○ System improvements to avoid / mitigate AWQI's: Updates to SOP's or forms re: AWQI's experienced? New SOP's / Forms to prevent future issues?</li> </ul>
<p><b>c) Deviations from critical control point limits and response actions</b></p>	<p><b>Commonly reported: # of deviations from CCL's by type. Additional considerations:</b></p> <ul style="list-style-type: none"> <li>○ Dates of deviations, response actions, root cause analyses</li> <li>○ Trends against historical occurrences or recurring issues, any changes to CCP's</li> <li>○ Quality impacts at different times of the yr., training to staff for awareness of these</li> <li>○ Corrective actions taken, control measures implemented and verified effective?</li> <li>○ Discuss how to avoid deviations and how they happened in the first place</li> <li>○ Preventive actions to prevent future occurrences, how corrected</li> <li>○ Common themes, aggregate data, history, trends, any recurrences</li> <li>○ Recommendations: process review and control, back-ups, review logbook</li> <li>○ Report on overtime from deviations and the on-call response process</li> <li>○ Any online equipment malfunctioned (false reading or blip)? Related corrective actions on these, potentially modify CCL's or modify / develop new SOP's</li> <li>○ Any unusual circumstances / non-standard practice / maintenance activities / near misses? Why any of these have occurred? Number of call-outs due to CCL's?</li> <li>○ Proper documentation to support the deviation?</li> </ul>
<p><b>d) The effectiveness of the risk assessment process</b></p>	<p><b>Commonly reported: Date of risk assessment (and sometimes, if it was "calendar year" or "36-month" activity). Additional considerations:</b></p> <ul style="list-style-type: none"> <li>○ Overview of how we assess risks / review of risk matrices – determine if the risk assessment was scored appropriately and is effective</li> <li>○ Assumptions used in the risk assessment, any actual experiences that change the probability / likelihood and/or severity / consequence ratings?</li> <li>○ Additions, changes, deletions, procedures resulting from risk assessment, CCP's and CCL's reviewed, also what the MECP mandates (e.g. cybersecurity threats)</li> <li>○ New system changes / new SOP's? Any failures or near misses to now consider?</li> <li>○ What hazards occurred, were control measures effective? Any new risks identified</li> <li>○ Any changes made, why, who participated – track changes to ratings (up or down) and reasoning why</li> <li>○ Conclusions on high risks (whether added or removed) and evaluation of effectiveness of risk management system in place</li> <li>○ Integrate risk assessment with what financial plan, infrastructure reviews plan for?</li> </ul>

Breakout session	Using Management Reviews to Drive Improvement
	<ul style="list-style-type: none"> <li>○ Any change of resources required for CCP's? HR risks / skilled workers in right positions? Situational risks (asset layouts, municipal challenges, political climate)? Natural risks and their increasing presence due to climate change – flooding, fires?</li> <li>○ Could attach minutes from the risk assessment review / update meeting</li> </ul>
<p><b>e) Internal and third-party audit results</b></p>	<p><b>Commonly reported: Dates of internal &amp; third-party audits, # of NC's, # of OFI's.</b></p> <p><b>Additional considerations:</b></p> <ul style="list-style-type: none"> <li>○ Auditor qualifications, staff time involved, name of vendor, evaluation of auditor</li> <li>○ Scope: Who participated and what was audited, for what timeframe,</li> <li>○ What was the focus of the audit</li> <li>○ Were previous actions completed, compared to previous years' results</li> <li>○ Details and context of audit findings</li> <li>○ Positive audit findings / good news stories</li> <li>○ Root cause of any non-conformities, corrective actions and results</li> <li>○ If corrective actions are not yet implemented, why</li> <li>○ Tracking of NC's, opportunities for improvement, decisions on implementing these, assign person responsible to address, future status updates on these</li> <li>○ Trends and outcomes metrics</li> <li>○ Changes to be implemented – can they also be applied in other parts of the system</li> <li>○ Lessons learned and staff training for future audit preparation</li> <li>○ Share results with as many staff as possible, have follow-up meetings re: results</li> </ul>
<p><b>f) Results of emergency response testing</b></p>	<p><b>Commonly reported: Date of emergency response test, "scenario" name.</b></p> <p><b>Additional considerations:</b></p> <ul style="list-style-type: none"> <li>○ Who was included – internal and external (e.g. MECP inspectors, MOH, PH insp's)</li> <li>○ Scenario selected, description, why (e.g. realistic, trends), summary of content covered, what procedures / forms / check sheets related to the event? Updates?</li> <li>○ What is the full list of possible scenarios to train and test on – when are they next planned? Have you considered a session touching on multiple scenarios (a complex situation that starts with one large-scale issue and evolves into something much larger) – could have fun with "choose-your-own-adventure" style of test.</li> <li>○ Are there new emergencies that should be considered that haven't yet been captured in your system?</li> <li>○ Outcomes: what determines the test was successful? Was test effective? Any deficiencies?</li> <li>○ If actual emergency scenario, what was learned? Staff suggestions? Follow-up?</li> <li>○ Was there a debriefing completed – what worked, what didn't, what was weak or strong, any operational changes needed?</li> <li>○ Questions asked during the training / test</li> <li>○ Operator feedback, staff suggestions, observations during the training &amp; test exercise? How did staff react?</li> <li>○ Any crossover with other departments or other municipalities? Municipal emergency plan (potentially) activated?</li> </ul>

Breakout session	Using Management Reviews to Drive Improvement
	<ul style="list-style-type: none"> <li>○ Plans for improvement: changes resulting from the test – e.g. procedures updated, new training, contact lists, new equipment / stock in place, new response considerations</li> <li>○ Tracking of opportunities for improvement, decisions on implementing these, future status updates on these; if improvement not implemented, why not</li> <li>○ See what others' emergency response testing includes – they may have another view on a similar situation</li> <li>○ Suggestions for top management (i.e. "what keeps you up at night")</li> <li>○ Review BWA or DWA procedures with local MOH in advance of needing them</li> </ul>
g) Operational performance	<p><b>Commonly reported: Water supply / treatment: total and flows of water supplied, capacities of plants / facilities; Distribution: # leaks, # hydrant maintained, # mainbreaks, # valves maintained, # service. Additional considerations:</b></p> <ul style="list-style-type: none"> <li>○ Performance expected vs. what was achieved – what are the gaps, problems?</li> <li>○ What are the short- and long-term trends, statistics, compare over several years, anything unusual, other observations? Improvement opportunities?</li> <li>○ Any KPI's? e.g. watermain breaks per area, type of material, year to year, month to month, updated algorithm, population growth, km's watermains added, etc.</li> <li>○ Historical trending, trends in capacity / storage, maximum allowable flows and current %, operational upgrades necessary? Ensure pumps match designed flows</li> <li>○ Visual displays of graphs and trends to more easily identify potential issues</li> <li>○ Cost per m<sup>3</sup> water produced? Able to be greener / lower cost / more efficient?</li> <li>○ Costing / budget implications? Asset Mgmt Plan implications?</li> <li>○ Operational staff efficiencies?</li> <li>○ Scheduled operations &amp; maintenance activities compared to completed</li> <li>○ Maintenance summary – who is responsible? targets met? challenges or issues encountered? Work orders closed / any repeat issues? Higher frequency needed?</li> <li>○ Meeting maintenance quality standards / programs? Where are repairs happening</li> <li>○ Improvement suggestions, common recurrence or new problems / issues?</li> <li>○ Upcoming issues / changes anticipated?</li> <li>○ Any upgrades to improve performance? Infrastructure programs / replacements / expansions that can impact operations (negatively or beneficially)?</li> <li>○ Changes over time and how that is related to population</li> <li>○ How are leaks and breaks related?</li> <li>○ Water loss information by area</li> <li>○ Number of operators, upcoming certification / licensing expiry dates, upgrades, training completed, any issues covering on-calls? Operator feedback</li> <li>○ Number of customers, future growth anticipated</li> <li>○ Number of call-outs / trends? Types of calls? Response time? After-hour call-outs</li> <li>○ Compare stats between reviews; service review for operations</li> </ul>
h) Raw water supply and drinking water quality trends	<p><b>Commonly reported: Annual raw &amp; treated water quality results and distribution sampling results. Additional considerations:</b></p> <ul style="list-style-type: none"> <li>○ Link to Annual &amp; Summary reports</li> </ul>

Breakout session	Using Management Reviews to Drive Improvement
	<ul style="list-style-type: none"> <li>○ Trends, statistics year over year comparisons, by area, by parameter – are they getting better or worse historically? Are we approaching any max / min limits?</li> <li>○ Description of what the results are indicating; adverse or objective exceedances?</li> <li>○ Changing source water: Did raw water quality change from year before? Might adjust chemical dosages. Seasonal or Climate-related? Precipitation values, ambient temps, pH, turbidity, additional sampling, waterbody levels; seasonal peaks? Groundwater monitoring program? Harmful algal blooms (blue green algae)? Upstream spills impacting? Any major changes in raw water since last yr?</li> <li>○ Operational: Water loss, corrosion control, research results, legislative, any new process implemented, trends data from lab, extra samples beyond regulated</li> <li>○ Parameters of potential interest / of emerging concern, trending, any approaching ½ MAC, actions taken? Improved / more frequent monitoring?</li> <li>○ Change in water quality cause any extra operational cost? Anything unusual?</li> <li>○ Interpretation of results, trends identified, population, sampling location</li> <li>○ Conservation authorities – what are they seeing?</li> <li>○ Trends in THM's and HAA's, disinfection by-products, lead samples</li> <li>○ Trending usage current vs. historic</li> <li>○ Water quality complaints vs. data vs. locations</li> </ul>
<p><b>i) Follow-up on action items from previous management reviews</b></p>	<p><b>Commonly reported: Action item updates from previous meeting. Additional considerations:</b></p> <ul style="list-style-type: none"> <li>○ What were they, what was done, who was involved, what was the outcome?</li> <li>○ Who's assigned to what, did you meet your deadlines, review current status?</li> <li>○ Long-standing deadlines still missed? Challenges meeting action item deadlines?</li> <li>○ Action items still relevant? Person assigned still relevant?</li> <li>○ Staff suggestions made via action items or otherwise?</li> <li>○ Implemented or not? Why? Why not?</li> </ul>
<p><b>j) The status of management action items identified between reviews</b></p>	<p><b>Commonly reported: "None". Additional considerations:</b></p> <ul style="list-style-type: none"> <li>○ Put a system in place to track management action items between reviews or track as a preventive action report / opportunity for improvement – track with CI items</li> <li>○ Could use MS Teams Planner Board / SharePoint for electronic tracking</li> <li>○ Who's assigned to what, did you meet your deadlines, current status?</li> <li>○ Updates from MECP or other agencies that impact your QMS, changes in regular maintenance or other activities</li> <li>○ Process for communicating action items</li> <li>○ Any significant items identified through tailgates or ongoing – time for action?</li> <li>○ Monthly meetings discuss what needs to be completed</li> <li>○ E.g. start valve exercising, SOP, establish comms w/ mgmt., staff training, initiate program to eliminate cross-connections, etc.</li> <li>○ E.g. Root cause analysis regarding operational challenges to find solutions</li> </ul>
<p><b>k) Changes that could affect the quality</b></p>	<p><b>Commonly reported: Organizational changes, new approvals coming. Additional considerations:</b></p>

Breakout session	Using Management Reviews to Drive Improvement
<b>management system</b>	<ul style="list-style-type: none"> <li>○ MECP updates, ERO postings, HC guideline proposals, new politicians, approvals</li> <li>○ New legislation, regulations, standards, procedures, guidelines, new by-laws</li> <li>○ Summary of changes to regulations table – highlight impacts on operations or staff</li> <li>○ New capital projects, new infrastructure, technology / resources available; new / updated programs; new software, new hardware (e.g. tablets), new maintenance system, improved redundancies / reliability of processes / programs</li> <li>○ Improve source water awareness</li> <li>○ Climate change – e.g. extreme cold (frozen pipes), extreme heat (wildfires, drought), extreme weather (flooding)</li> <li>○ Changes to infrastructure / equipment – trickle down changes re: Form 1's, 2's, 3's, O&amp;M's, SOP's, checksheets, work order system, mfer. recommendations, etc.</li> <li>○ Triggers for when updates are required</li> <li>○ What other municipalities are changing and take preventive actions</li> <li>○ Changes in QMS specifically – schedules, audits, meetings, changes to OP, SOP's</li> <li>○ Staffing changes (new / losses), review of roles / responsibilities with current staffing knowledge, historical staffing levels weighted against service level achieved, changes in operators' classes of certifications / licence levels, on-the-job training, lessons learned, OFI's from changing</li> <li>○ Resource challenges, workloads, presenting management with possible solutions</li> <li>○ New practices, new capital funding, alignment with strategic plan</li> </ul>
<b>l) Consumer feedback</b>	<p><b>Commonly reported: # consumer complaints by type. Additional considerations:</b></p> <ul style="list-style-type: none"> <li>○ Consumer feedback as KPI, RCA &amp; common cause events.</li> <li>○ Satisfaction surveys?</li> <li>○ Year / year trends in complaints, by type, by area, response actions, response time</li> <li>○ Responses to complaints, potential root causes, corrective actions, investigations</li> <li>○ Common complaints, common areas of concern, time to respond / close</li> <li>○ Was the initial feedback effective (e.g. script for person answering the phone), was there an investigation, response time, what was the outcome, lessons learned?</li> <li>○ Complaint forecast – isolate and examine problem areas, mapping spatially where feedback comes from, repeat callers, anything ongoing? GIS tracking of hotspots</li> <li>○ Upgrades to DWS's to decrease complaints, consumer compliments</li> <li>○ Compare type / location / time of taste &amp; odour complaints – see if trends with seasonal raw water quality, process chemicals / pH changes</li> <li>○ Cost for maintaining service level – sampler time, lab costs</li> </ul>
<b>m) The resources needed to maintain the quality management system</b>	<p><b>Commonly reported: # staff and whether these are adequate. Additional considerations:</b></p> <ul style="list-style-type: none"> <li>○ Staff and budget, software, tools and equipment</li> <li>○ Succession planning, operator progression and qualifications</li> <li>○ Technology / programs / software required for QMS</li> <li>○ Training – do we provide enough?</li> <li>○ QMS should be identified in roles / responsibilities</li> <li>○ Schedule / work required to determine sufficient staffing levels</li> </ul>

Breakout session	Using Management Reviews to Drive Improvement
<p>n) The results of the infrastructure review</p>	<p><b>Commonly reported: Infrastructure review meeting date, with high-level summary of capital budget items requested. Additional considerations:</b></p> <ul style="list-style-type: none"> <li>○ Action items from infrastructure reviews</li> <li>○ Summary of recommendations made</li> <li>○ Asset management and assessment, projects coming up and budget summary</li> <li>○ What's the condition of the infrastructure, long-term plans</li> <li>○ Tie-in risk assessment with infrastructure review</li> <li>○ Correlation with financial plan for new QMS versions</li> </ul>
<p>o) Operational plan currency, content and updates</p>	<p><b>Commonly reported: OP "kept current", describing how kept current. Additional considerations:</b></p> <ul style="list-style-type: none"> <li>○ Planned updates for each of the Element procedures in the OP</li> <li>○ Changes made and communication provided</li> <li>○ Communicate MECP bulletins, revision tables and track updates</li> <li>○ Does the OP present actual practices, are we considering changes in technology</li> </ul>
<p>p) Staff suggestions</p>	<p><b>Commonly reported: "None". Additional considerations:</b></p> <ul style="list-style-type: none"> <li>○ Staff suggestions made and review BMP's</li> <li>○ Track staff suggestions and summarize actions taken</li> <li>○ Bring forward operators' comments from emergency response training, etc.</li> <li>○ Are staff suggestions being tracked – how and what is the feedback / outcome?</li> </ul>