



# MANAGEMENT SYSTEM CHANGES ANTICIPATED FROM COVID-19

# PRESENTATION OVERVIEW



- Your *key* management system *commitments*
- *The intent* of your management system
- *Early lessons learned* in our COVID-19 experience
- What parts of your *management systems could be updated*
- *Considerations* for what's possible in achieving what's intended

## KEY MANAGEMENT SYSTEM COMMITMENTS



*Our commitments are our duties.*

### Drinking Water QMS:

- *provide safe drinking water,*
- *comply with legal requirements,*
- *achieve continual improvement.*

### Wastewater / Stormwater EMS:

- *protect the environment (incl. prevention of pollution),*
- *fulfill compliance obligations,*
- *continual improvement to enhance environmental performance.*

# A SHARED RESPONSIBILITY FOR KEY MANAGEMENT SYSTEM COMMITMENTS



Ministry of  
the  
Environment,  
Conservation  
and Parks



Ministry of  
Health and  
Long-Term  
Care

Public  
Health  
Ontario

Local  
Medical  
Officer of  
Health



Owner



Water /  
Wastewater /  
Stormwater  
Utility

## INTENT OF MANAGEMENT SYSTEMS



*“You do not rise to the level of your goals.  
You fall to the level of your systems.”* – James Clear, Atomic Habits

1. ***Set ourselves up for success*** – to consistently achieve what’s intended from each of our processes and programs.
2. When you ***“fall”***, you take ***actions to improve*** your system.

\*\*\*Recommended opportunities to improve in this presentation are in the order as the DWQMS Elements appear, starting with Element 5 Document and Records Control.

# OPPORTUNITY TO IMPROVE ACCESS TO DOCUMENTED INFORMATION



- Describe how staff access or submit *information remotely*?
- *Regular* system or a *temporary solution*?
- *Instructions needed* to remind staff *how to access or submit* information in the future?

*Especially important* for documents and records:

- needed to ensure the effective planning, *operation and control* of operations
- related to responding to *adverse conditions*

An advertisement for the Adobe Scan app. It features a smartphone displaying a document scan with a "Save PDF" button highlighted. Below the phone, the text reads "Get the free Adobe Scan app" and "Turn your phone or tablet into a portable scanner to scan anything to PDF. Download now." At the bottom, there are buttons for "Download on the App Store" and "GET IT ON Google Play".

Get the free Adobe Scan app

Turn your phone or tablet into a portable scanner to scan anything to PDF.  
Download now.

Download on the App Store

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# OPPORTUNITY TO IMPROVE CONSIDERATION OF RISKS



- Are other *hazardous events* or *environmental impacts possible* in a pandemic?
- *Emergency Management Ontario (EMO)* updated its [Hazard Identification and Risk Assessment \(HIRA\) in 2019](#) – summary slides follow.
- Many of these represent *external issues* that can compound *internal personnel coverage* issues you may experience during a pandemic.

# EMO'S 9 SUBSECTIONS OF HAZARDS: WHICH ARE MOST LIKELY TO AFFECT UTILITIES?



## A. Agricultural & Food Emergency

- Farm Animal Disease
- Food Contamination
- Plant Disease or Infestation

## B. Environmental

- Avalanche
- Drought or Low Water
- Earthquake
- Erosion
- Extreme Cold
- Extreme Heat
- Flood
- Fog
- High Wind
- Hurricane
- Land Subsidence
- Landslide
- Lightning
- Thunderstorm
- Storm Surge
- Tornado
- Wildland Fire
- Winter Weather



# EMO'S 9 SUBSECTIONS OF HAZARDS: WHICH ARE MOST LIKELY TO AFFECT UTILITIES?



## C. Extraterrestrial

- Space Object Crash (Any)
- Space Weather

## D. Hazardous Materials

- (Fixed site or in transport)
- Chemical Release
- Nuclear (Facility)
- Oil or Natural Gas Release
- Radiological Emergency

## E. Health

- Water Quality
- Infectious Disease
- Substance Use & Overdose

## F. Public Safety

- Active Threat
- Civil Disorder

- Crowd Disaster
- Geopolitical Pressures
- Sabotage
- CBRNE (chemical, biological, radiological, nuclear, explosive)
- Cyber Attack
- Electromagnetic Pulse (EMP)

# EMO'S 9 SUBSECTIONS OF HAZARDS: WHICH ARE MOST LIKELY TO AFFECT UTILITIES?



## G. Structural

- Dam Failure
- Fire/Explosion
- Mine Emergency
- Structure Failure

## H. Supply & Distribution

- Communications Failure

## I. Transportation

- Electrical Energy Failure
- Food Shortage
- Medical Drug, Blood Product or Supplies Shortage
- Petroleum Product Shortage
- Water or Wastewater Disruption

- Aviation
- Marine
- Public Transit Systems
- Rail, Light Rail, Subway
- Road and Highway

# OPPORTUNITY TO IMPROVE CONSIDERATION OF RISKS



For *drinking water*, the MECP also identifies *Potential hazardous events for municipal drinking water systems to consider in the risk assessment:*

Hazardous Event / Hazard	Hazardous Event / Hazard
<i>Long-term impacts of climate change</i>	<i>Sustained pressure loss</i>
<i>Water supply shortfall</i>	<i>Backflow</i>
<i>Extreme weather events</i>	<i>Sudden changes to raw water characteristics</i>
<i>Sustained extreme temperatures</i>	<i>Failure of...primary disinfection</i>
<i>Chemical spill impacting source water</i>	<i>Failure of...secondary disinfection</i>
<i>Terrorism and vandalism actions</i>	<i>Algal blooms</i>

# OPPORTUNITY TO IMPROVE CONSIDERATION OF **CHANGING RISKS**



- Build resiliency now: What *control measures* and/or *response procedures* can be developed to address **changing risks** (temporarily or on a permanent basis)?
  - *Low flow / low water use conditions* ID new risk areas (from water use data); set-up controls (run water?); response procedures (flush @ *CCL triggers*)
  - *Changing ICI operations* (e.g. industrial automotive customer switched to medical device production) adversely impacting *WWT operations*
- Is any part of your operation *less reliable* and *less redundant* in a pandemic?
- *Risk assessment update in 2020.*

## OPPORTUNITY TO IMPROVE CLARIFICATION OF ROLES, RESPONSIBILITIES, **AUTHORITIES**



- Your management system describes *roles, responsibilities and authorities*.
- Review descriptions re: “*authorities*” (esp. in your pandemic experience).
- Are you *authorized* to carry-out your responsibilities, as described?
  - As established in “*normal operating conditions*”
  - Under “*special circumstances*”, such as in a declared emergency?
- Especially important to *understand your authorities in failures / emergency situations*

# OPPORTUNITY TO IMPROVE AVAILABILITY OF STAFF TRAINING



## 300+ co-op students help Waterloo transition to online courses

The University of Waterloo is leveraging more than 300 co-op students to support faculties in the development and delivery of new online academic courses.

[Message from the University of Waterloo \(May 15, 2020\)](#): *all large* classes will happen *online* this fall; *some* classes and supports will be available *in-person*...

# OPPORTUNITY TO IMPROVE AVAILABILITY OF STAFF TRAINING



**Pandemic Risk Communication & Business Continuity Planning**

Thursday, March 19, 2020,  
1:00 pm EST

**2015 - INCOV**

PRESENTED BY: Centre for Crisis & Risk Communications  
HOSTED BY: IAEM  
SUPPORTED BY: International Association of Business Communicators, Edmonton

A row of four headshots of water professionals: a woman with white hair and glasses, a man with a beard and glasses, a woman with dark hair and glasses, and a man with grey hair and glasses.

**COVID-19: A Water Professional's Perspective**

IWA  
The International Water Association

The OnWARN logo, featuring a blue water drop with radiating lines and the text "OnWARN" below it.

**ONTARIO WATER / WASTEWATER AGENCY RESPONSE NETWORK (OnWARN)**

**"Utilities Helping Utilities"**

Ontario Municipal Water Association Webinar  
April 23, 2020

A microscopic view of several COVID-19 virus particles, appearing as orange, spiky spheres against a dark background.

**COVID-19: CONSIDERATIONS FOR WATER AND WASTEWATER MANAGEMENT**

OMWA Webinar  
MARCH 2020

Stantec

A microscopic view of several COVID-19 virus particles, appearing as red and blue spiky spheres against a blue background.

**COVID-19: A Utility Leaders' Response**

ONLINE DIALOGUE: 17 APRIL 2020 TIME: 15:00 CEST

IWA  
The International Water Association

**EXITING ONE CRISIS – MITIGATING ANOTHER POTENTIAL CRISIS**

MAY 1, 2020

OMWA - ONTARIO MUNICIPAL WATER ASSOCIATION  
CWWA - CANADIAN WATER & WASTEWATER ASSOCIATION

BRIAN JOBB TRAINING & CONSULTING

The logo for Brian Jobb Training & Consulting, featuring a stylized blue and white graphic.

# OPPORTUNITY TO IMPROVE PERSONNEL COVERAGE WITH O. REG. 75

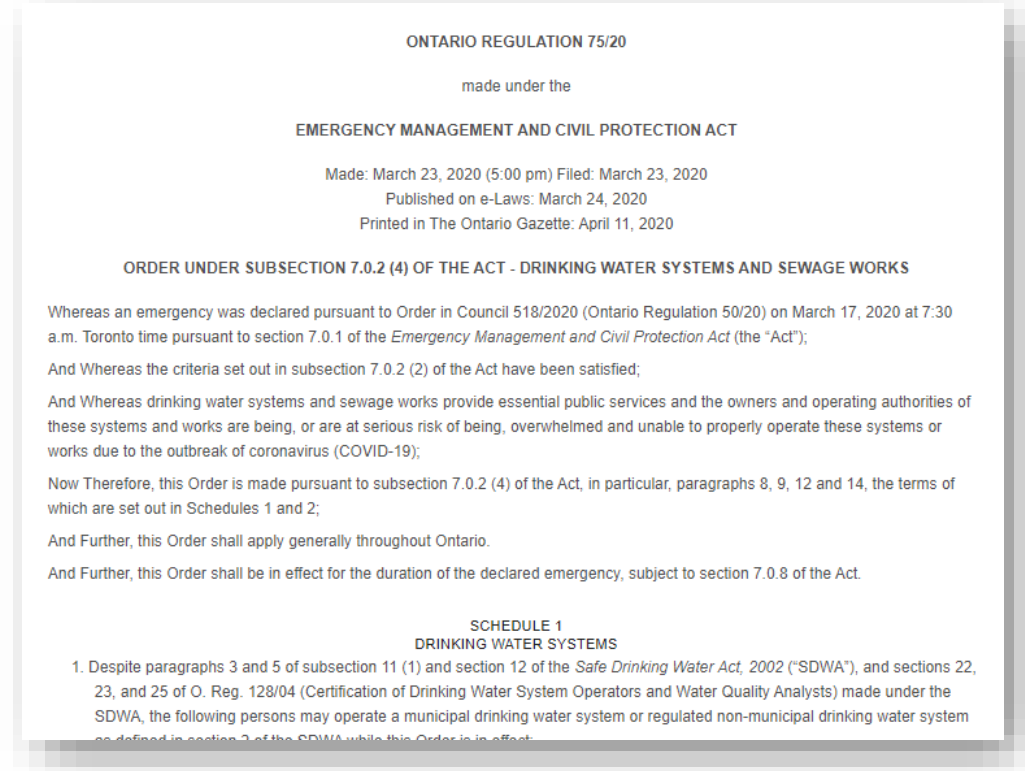


- Emergency order issued for *drinking water systems and sewage works* through Ontario Regulation 75/20.

The reg. *outlines conditions* under which:

- *non-certified / non-licensed* staff can be *used & redeployed* (*record-keeping* req'ts)
- *OIC / ORO* responsibilities and duties *can be assigned*

**\*Inform Ministry's SAC** (1-800-268-6060 or [awqi.reporting@Ontario.ca](mailto:awqi.reporting@Ontario.ca)) as soon as you anticipate *difficulties* such as: inability to *collect samples*, *lack of staffing resources*, *supply issues*, or a *break in continuity of operations*.





# OPPORTUNITY TO IMPROVE PERSONNEL COVERAGE WITH O. REG. 75



Consider how the records you are creating during the pandemic may be used in the future

## Records keeping

- *who is doing what and how is it being logged?*

Will the records be evaluated during an audit or inspection?

## *Training requirements and certification*

- *what adjustments have been made to your tracking process?*
- *Will previously documented processes continue to be applicable when things return to 'normal'?*

# OPPORTUNITY TO IMPROVE PERSONNEL COVERAGE RE: PANDEMIC HEALTH & SAFETY



- H&S strategies – *special PPE* provided (new suppliers' contact info listed?)
- Management, administrative, technical staff working *remotely / staggered* days at site
- Physical distancing of *operational* staff
  - Team assignments at *different locations*
  - Team assignments with *days on / off*
  - Individual *assignments* / individual *vehicles*
  - *High priority* only: *CCP-related* / *SEA-related*
  - *Suspended lower priority* work

## STANDARD RESPONSE GOALS

1. Safety & Health of All Responders
2. Save Lives
3. Reduce Suffering
4. Protect Public Health
5. Protect Critical Infrastructure
6. Protect Property
7. Protect the Environment
8. Reduce Economic & Social Losses

# OPPORTUNITY TO IMPROVE COMMUNICATIONS USING WEB-BASED TOOLS



# OPPORTUNITY TO IMPROVE COMMUNICATIONS WITH CWWA GUIDANCE



## SAFELY RE-OPENING BUILDINGS General Guidance for Water Utilities

*Share effectively:* website, social media, hand delivery, MOH, PHI's, chambers of commerce, BIA's, sector associations

### *Checklist to:*

1. *Make a plan* – ID zones, equipment, pumps, tanks, valves, pipes, fixtures, food / coffee units, etc.
2. *Flush cold* water first, *then hot* through: plumbing, equipment, storage.
3. *Clean / disinfect* all taps and fixtures.
4. *Shock disinfection* by pro. *if needed*.
5. Keep *hot water tanks* > 60°C
6. *Test for disinfectant* residual.

## SAFELY RE-OPENING BUILDINGS a FACT SHEET for Building Owners/Operators



prepared by the  
Canadian  
Water and Wastewater  
Association

May 2020



prepared by the  
Canadian  
Water and Wastewater  
Association

May 2020



# OPPORTUNITY TO IMPROVE AVAILABILITY OF ESSENTIAL SUPPLIES / SERVICES



- ***Essential to operations, mtg. spec.:***
  - chemicals, equipment, parts, labs
- your ***corporate services*** support:
  - IT, media / public communication, fleet, payroll, procurement, by-law
- ***fuel*** providers, ***power***, electrical and back-up generation
- ***SCADA, instrumentation & security***
- ***telecommunications & network*** providers
- utility ***locates***-related
- ***distribution / collection*** system:
  - dump trucks, excavators, contractors
- ***maintenance-related***
  - electrical / mechanical / millwright / plumbing
- ***health & safety*** / PPE-related
- ***call centre*** support
- ***spills response*** contractors

# OPPORTUNITY TO IMPROVE INFRASTRUCTURE PROJECTS & MAINTENANCE PROG'S



- Are risk-based infrastructure *projects proceeding in 2020* or *deferred*?
- Are *risk-based maintenance* (CCP- & SEA-related) *activities effective*?
- Are *lower risk maintenance* activities continuing or *deferred*?
- *Report any deviations* through *Management Review* and to the *Owner*
- *Note all exceptions to rules* and update in *pandemic contingency plans*

# OPPORTUNITY TO IMPROVE EMERGENCY PREPAREDNESS



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## COVID-19 RESPONSE: FREELY AVAILABLE ISO STANDARDS

16 April 2020

[Share on Twitter](#), [Facebook](#), [Linkedin](#)

The below list has been compiled to support global efforts in dealing with the COVID-19 crisis. They are freely available in read-only format.

### RELATED INFORMATION

#### [COVID-19: NATIONAL RESOURCES](#)

This page is dedicated to featuring national resources developed by ISO members to support the fight against COVID-19.

# FREE ACCESS TO ISO STANDARDS FOR EMERGENCY

[HTTPS://WWW.ISO.ORG/COVID19](https://www.iso.org/covid19)



- [ISO 374-5:2016](#), Protective gloves against dangerous chemicals and micro-organisms - Part 5: Terminology and performance requirements for micro-organisms risk
- [ISO 10651-3:1997](#), Lung ventilators for medical use — Part 3: Particular requirements for emergency and transport ventilators
- [ISO 10651-4:2002](#), Lung ventilators — Part 4: Particular requirements for operator-powered resuscitators
- [ISO 10651-5:2006](#), Lung ventilators for medical use — Part 5: Particular requirements for basic safety and essential performance — Part 5: Gas-powered emergency resuscitators
- [ISO 10993-1:2018](#), Biological evaluation of medical devices — Part 1: Evaluation and testing within a risk management process
- [ISO 13485:2016](#), Medical devices — Quality management systems - Requirements for regulatory purposes
- [ISO 13688:2013](#), Protective clothing — General requirements
- [ISO 17510:2015](#), Medical devices — Sleep apnoea breathing therapy — Masks and application accessories
- [ISO 18082:2014](#), Anaesthetic and respiratory equipment — Dimensions of non-interchangeable screw-threaded (NIST) low-pressure connectors for medical gases [*Including ISO 18082:2014/AMD 1:2017, [AMENDMENT 1](#)*]
- [ISO 18562-1:2017](#), Biocompatibility evaluation of breathing gas pathways in healthcare applications — Part 1: Evaluation and testing within a risk management process
- [ISO 18562-2:2017](#), Biocompatibility evaluation of breathing gas pathways in healthcare applications — Part 2: Tests for emissions of particulate matter
- [ISO 18562-3:2017](#), Biocompatibility evaluation of breathing gas pathways in healthcare applications — Part 3: Tests for emissions of volatile organic compounds (VOCs)
- [ISO 18562-4:2017](#), Biocompatibility evaluation of breathing gas pathways in healthcare applications — Part 4: Tests for leachables in condensate
- [ISO 19223:2019](#), Lung ventilators and related equipment — Vocabulary and semantics
- [ISO 20395:2019](#), Biotechnology — Requirements for evaluating the performance of quantification methods for nucleic acid target sequences — qPCR and dPCR
- [ISO 22301:2019](#), Security and resilience – Business continuity management systems –Requirements
- [ISO 22395:2018](#), Security and resilience – Community resilience – Guidelines for supporting vulnerable persons in an emergency
- [ISO 22320:2018](#), Security and resilience – Emergency management – Guidelines for incident management
- [ISO 22316:2017](#), Security and resilience – Organizational resilience – Principles and attributes
- [ISO 31000:2018](#), Risk management – Guidelines
- [ISO 5356-1:2015](#), Anaesthetic and respiratory equipment — Conical connectors — Part 1: Cones and sockets
- [ISO 80601-2-12:2020](#), Medical electrical equipment — Part 2-12: Particular requirements for basic safety and essential performance of critical care ventilators
- [ISO 80601-2-13:2011](#), Medical electrical equipment — Part 2-13: Particular requirements for basic safety and essential performance of an anaesthetic workstation [*Including: ISO 80601-2-13:2011/Amd.1:2015, [AMENDMENT 1](#) and ISO 80601-2-13:2011/Amd.2:2018, [AMENDMENT 2](#)*]
- [ISO 80601-2-70:2015](#), Medical electrical equipment — Part 2-70: Particular requirements for basic safety and essential performance of sleep apnoea breathing therapy equipment
- [ISO 80601-2-74:2017](#), Medical electrical equipment — Part 2-74: Particular requirements for basic safety and essential performance of respiratory humidifying equipment
- [ISO 80601-2-79:2018](#), Medical electrical equipment — Part 2-79: Particular requirements for basic safety and essential performance of ventilatory support equipment for ventilatory impairment
- [ISO 80601-2-80:2018](#), Medical electrical equipment — Part 2-80: Particular requirements for basic safety and essential performance of ventilatory support equipment for ventilatory insufficiency
- [ISO/TS 16976-8:2013](#), Respiratory protective devices — Human factors — Part 8: Ergonomic factors



# OPPORTUNITY TO IMPROVE EMERGENCY MANAGEMENT – TRAINING & TESTING



- In 2020, the *pandemic* can be your *emergency training and test exercise* (along with other actual emergencies), as long as you *conduct a debrief* and *track improvement*.
- **Debrief:** involve *as many different perspectives* as possible, *answer:*
  1. *why* did this happen?
  2. what *went well*?
  3. what *didn't go well*?
  4. other opportunities for improvement (*OFI's*) / *lessons learned*?
- Link OFI's to the *continual improvement tracking* mechanism you have in place.

# OPPORTUNITY FOR IMPROVED AUDIT PROGRAM



- *Remote audits are permitted* through:
  - *Accreditation protocol* – operating authorities – municipal drinking water systems
  - *ISO 19011:2018* Guidelines for auditing management systems ref’s “remote audits” [s.5.4.3 k); s.5.4.4 g); s.5.5.3; Annex A.1; Table A.1; Annex A.15 c); Annex A.16)]
  - *IAF MD4:2018* *The use of information and communication technology (ICT) for auditing / assessment purposes*
- Can use *information and communication technologies (ICT)*
- *More specific audit planning* (person-by-person for phone / web-based interviews).

# ISO 19011:2018 GUIDELINES FOR AUDITING MANAGEMENT SYSTEMS (ANNEX A1)

Extent of involvement between the auditor and the auditee	Location of the auditor	
	On-site	Remote
<b>Human interaction</b>	Conducting interviews Completing checklists and questionnaires with auditee participation Conducting document review with auditee participation Sampling	Via interactive communication means: <ul style="list-style-type: none"> <li>— conducting interviews;</li> <li>— observing work performed with remote guide;</li> <li>— completing checklists and questionnaires;</li> <li>— conducting document review with auditee participation.</li> </ul>
<b>No human interaction</b>	Conducting document review (e.g. records, data analysis) Observing work performed Conducting on-site visit Completing checklists Sampling (e.g. products)	Conducting document review (e.g. records, data analysis) Observing work performed via surveillance means, considering social and statutory and regulatory requirements Analysing data

On-site audit activities are performed at the location of the auditee. Remote audit activities are performed at any place other than the location of the auditee, regardless of the distance.

# ALL AUDITS SHALL PLAN FOR RISKS & OPPORTUNITIES



## For remote audits, **risks:**

- Information and communication tech (*ICT*) *availability / capability / reliability*
- Auditee *ICT knowledge / familiarity*
- Evidence *might not be representative*
- *Auditing teams* is more *difficult*
- Could require additional *follow-up* and/or *follow-up on-site audit*

## For remote audits, **opportunities:**

- *Allows for* internal and external *audits to be conducted* during extraordinary times
- Developing *familiarity with tools* benefits staff in using *ICT tools for other reasons*
- *More efficient* with auditees' time, *can follow-up with* requested *information*
- Supports *business continuity. New normal?*

*“Early feedback is that customers prefer remotes. Lower cost, less invasive, improved logistics and for the most part, stable technology platforms.”* - a leading global certification body

# FAQ'S RE: AUDITING DURING THE PANDEMIC



## Would we get an NCR if we are *not able to audit on-site during the pandemic?*

- *Everyone* is experiencing same issue (re: *limited / no access* to sites)
- For 2020, audit *scope can be framed* to what is *reasonable / accessible*
- Your *audit report can note deviations* (what could not be verified in-person)
- Auditing standards *permit remote* management system *audits*

## Is it ok for the QMS Rep to audit the Operational Plan (OP) during the pandemic?

- S. 4 of ISO 19011 includes a *principle of independence* (impartiality / objectivity)
- The standard recognizes for *small organizations*, this *might not be possible*
- “*every effort* should be made to *remove bias* and *encourage objectivity*”
- Options: *defer* your internal audit *to a later time* as “calendar year” gives flexibility; have *another OA colleague* perform your *internal audit remotely*; have an *independent, not-yet-trained colleague* conduct the audit (*note / report deviations*)

# FAQ'S RE: AUDITING DURING THE PANDEMIC



## What if we don't have *sufficient staff capacity* to participate in an upcoming external audit?

- Both of the accreditation bodies are *currently scheduling remote audits* where it is practical and the *operating authority is capable of participating in an audit*.
- Reach out to your *accreditation body* to review how an audit may work for your system under current circumstances.

# OPPORTUNITY FOR IMPROVED MANAGEMENT REVIEW



*Summarize any challenges* experienced from the pandemic under the following Management Review agenda items (and others, as applicable):

- D) *effectiveness of risk assessment* process (any changes required?)
- E) internal / third-party *audit results* (report *any deviations from normal*)
- F) *results of emergency response testing* (summarize *pandemic debrief* results)
- G) summarize *operational performance* (and *any deviations* from normal)
- N) infrastructure review (*risk-based infrastructure projects proceeded or not?*)
- P) *staff suggestions* (esp. on *how we can be better prepared* in future)

Summarize *deficiencies, decisions, and action items; and report to Owner*

# OPPORTUNITY FOR IMPROVED CONTINUAL IMPROVEMENT PROGRAM



## Continual Improvement Report (CIR) Spreadsheet

CIR# (yyyy-#)	Issue Date	Issue Source	Issue Description	Action Taken or Comment	Assigned to:	Action Description	Date Confirmed Effective	Date Closed
2019-01	2019-01-30	Conformance - General	Consider establishing a spreadsheet as a method to track and measure continual improvement from a variety of sources (as listed in "Drop-down details" tab)		A. Person	Improvement		

- Track actions for *improved preparedness* through the implementation of *best management practices, preventive actions, opportunities for improvement* – look at debrief results, don't wait for non-conformities.

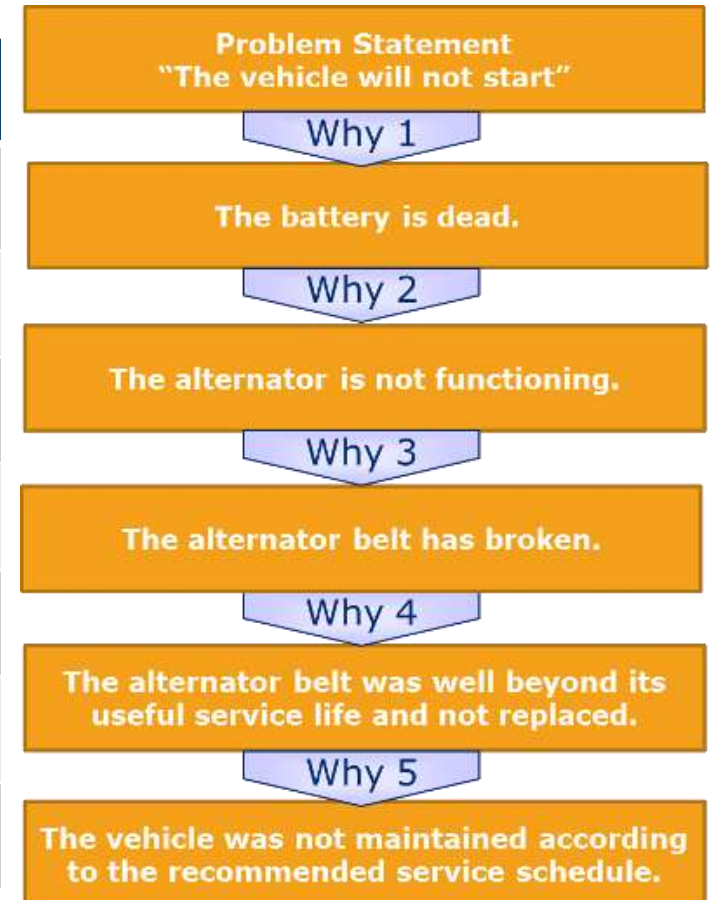


# 5 WHY'S TO HELP SOLVE PROCESS / PROGRAM **WEAKNESSES** & **FAILURES**

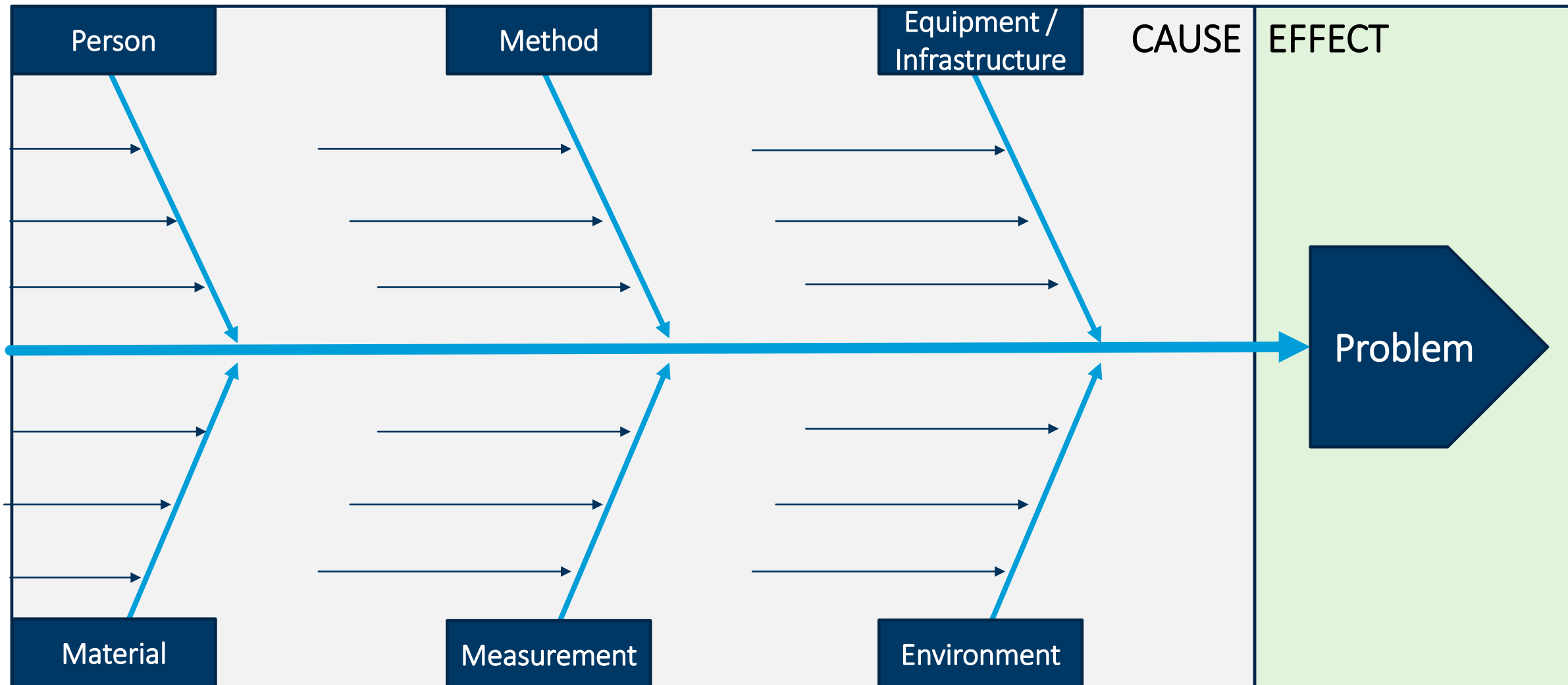


The 5- (...or more) why's worksheet

Failure / Error (or risk of...)	Cause
Why 1: Why did / does this occur?	
Why 2: Why did / does <b>THAT</b> occur?	
Why 3: Why did / does <b>THAT</b> occur?	
Why 4: Why did / does <b>THAT</b> occur?	
Why 5: Why did / does <b>THAT</b> occur?	
Why 6: Why did / does <b>THAT</b> occur?	ROOT CAUSE?



# ISHIKAWA (FISHBONE) DIAGRAM TO HELP SOLVE PROCESS / PROGRAM **WEAKNESSES** & **FAILURES**



## INTENT OF MANAGEMENT SYSTEMS



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You fall to the level of your systems.”* – James Clear, Atomic Habits

1. *Set ourselves up for success* – to consistently achieve what’s intended from each of our processes and programs.
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Ministry of  
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Local  
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Officer of  
Health



Owner



Water /  
Wastewater /  
Stormwater  
Utility

## KEY MANAGEMENT SYSTEM COMMITMENTS



*Our commitments are our duties.*

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- *provide safe drinking water,*
- *comply with legal requirements,*
- *achieve continual improvement.*

### Wastewater / Stormwater EMS:

- *protect the environment (incl. prevention of pollution),*
- *fulfill compliance obligations,*
- *continual improvement to enhance environmental performance.*

THANK YOU!



For more information or any questions, please contact:

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For more information on MECP's requirements, please contact:

Christopher Manning,  
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Ministry of the Environment,  
Conservation and Parks



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[www.ontario.ca/drinkingwater](http://www.ontario.ca/drinkingwater)