



Implementing Process Safety Fundamentals Why and How?

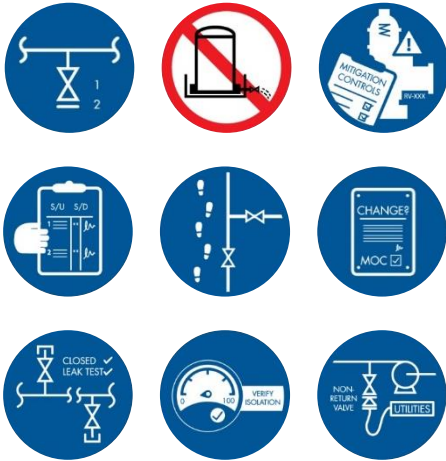
Robert van Dijk
Process Safety Shell Moerdijk

Agenda

- Which Process Safety Fundamentals?
- Why should every company introduce Process safety Fundamentals?
 - LOPC reduction
 - PS management
- How did we implement Process Safety Fundamentals, 2 examples
 - Implementation of Double Isolation
 - Implementation of Leak Tightness after Maintenance
- How do we maintain awareness and manage near misses
- Q&A

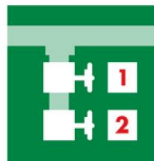
Which Process Safety Fundamentals ??

Former Shell PSF



European Process Safety Centre (EPSC)

Always use two barriers for hydrocarbon and chemical drains and vents



Do not leave an open drain or critical transfer unattended



Take interim mitigating measures in case of failure of Safety Critical Equipment



For all defined high risk activities, follow the procedures and sign off after each step



Walk the Line – Verify and validate any line up change



Do not make a change without a proper Management of Change



Verify for complete tightness after maintenance work



Always check that equipment is pressure free and drained, and provides safe isolation before starting maintenance work



Perform Management of Change and install backflow protection when connecting utilities to process

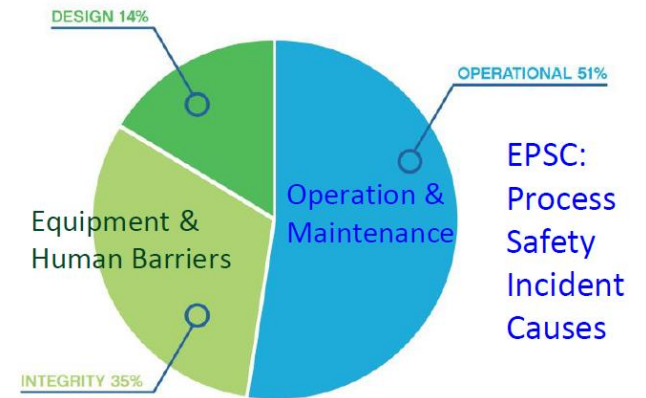
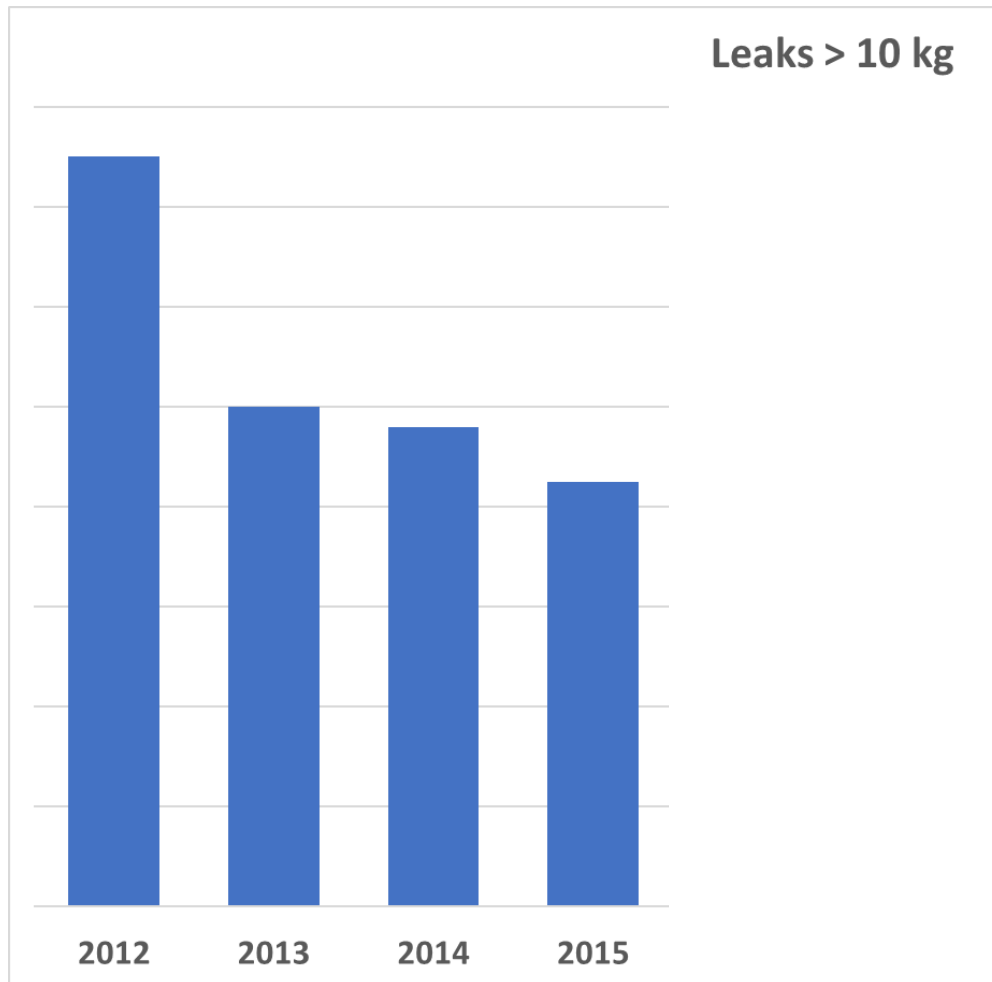


Respond to critical alarms

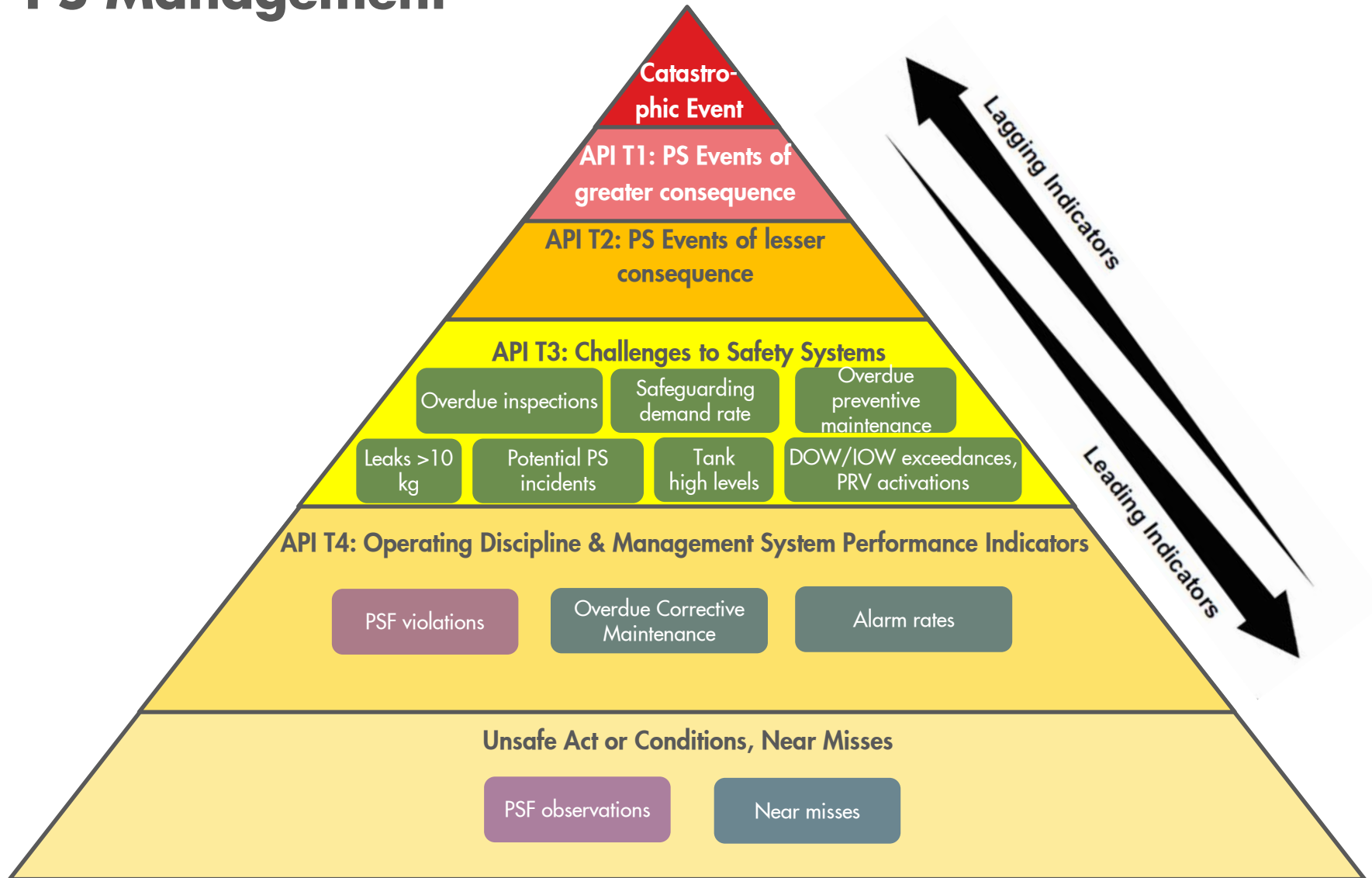


Current Shell PSF

LOPC reduction



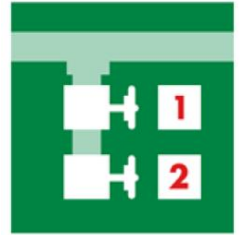
PS Management



How to implement PSF?

- Choose the PSF's which are applicable for your company and your performance
- Create awareness, knowledge and ownership
- Set behavioral expectations and agree on fair consequence management
- Embed PSF in your PS management system like other KPI's
- Identify the gaps and challenges in the field
 - Technical
 - Procedural
 - Competencies
- Implement good practices that help to get things right

How did we implement Double Isolation



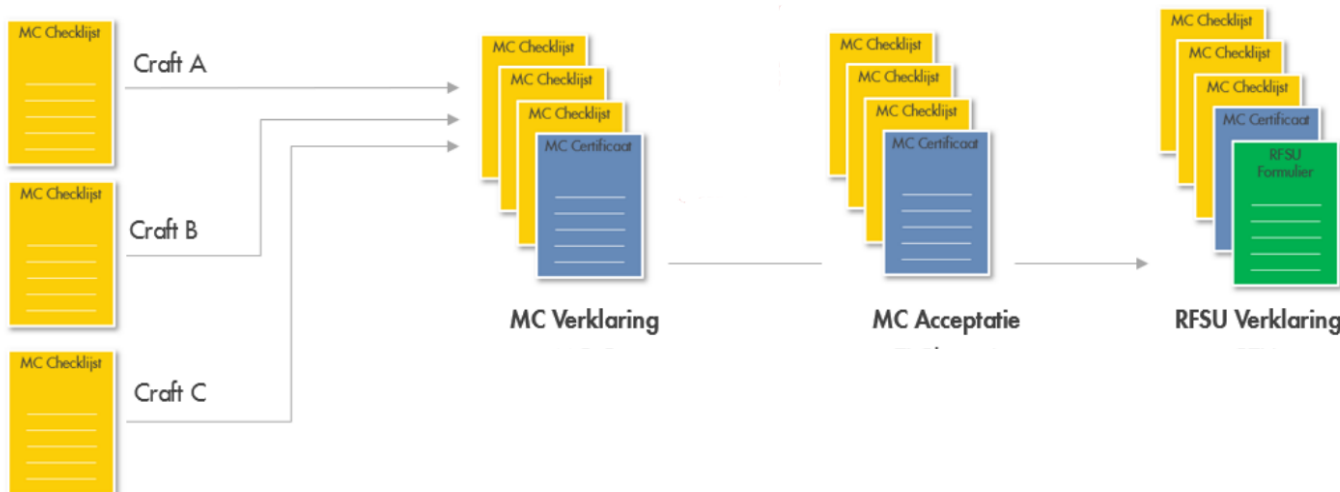
- Training: Set expectations, example incidents, list existing rules/procedures, FAQ
- Gap identification: locations where double isolation is missing
- FAQ: List of frequently asked questions
- Refresher training: Set expectations, consequence management
- Derogation register: Authorize exceptions and/or agree gap closure plan
- Assurance: quarterly review of derogations and gap closure plan

How did we implement Tightness after Maintenance



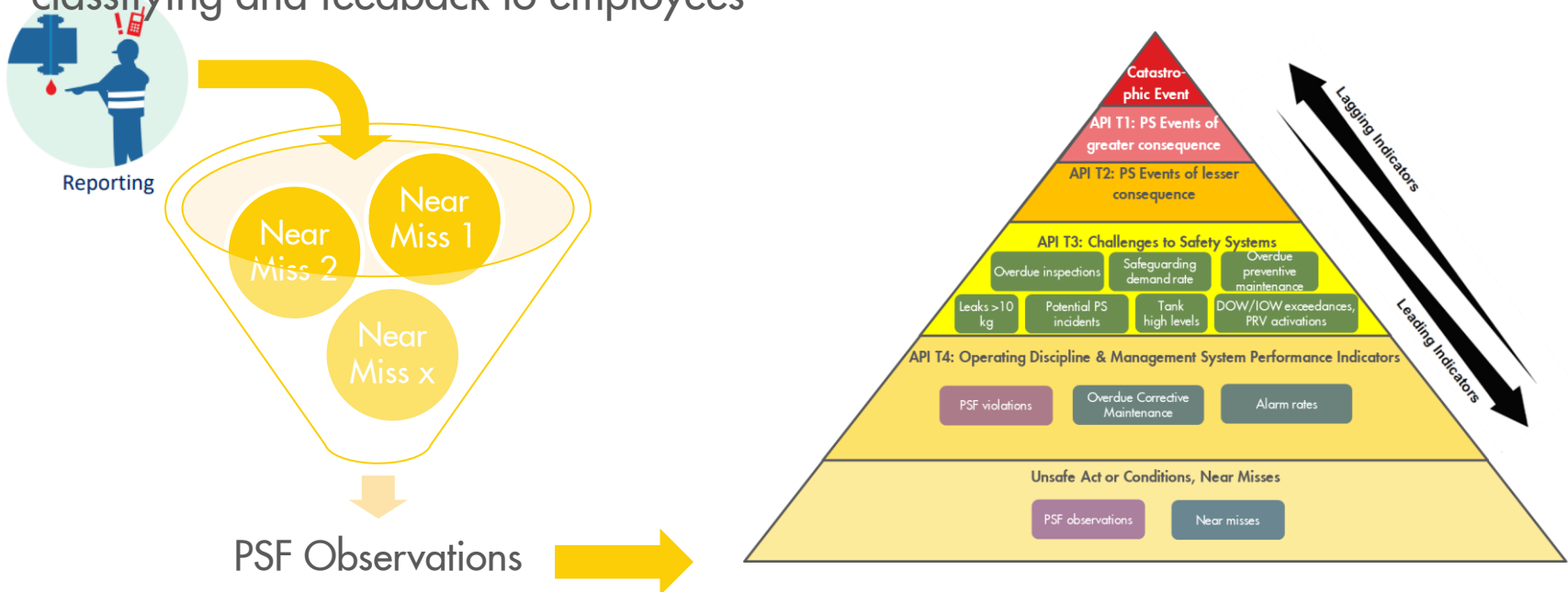
Verify for complete tightness after maintenance work

- Training: Set expectations, example incidents, list existing procedure, FAQ
- Gap identification: formal process for handover from maintenance to operations
- Gap closure:
 - Multidisciplinary workshops: “How good looks like”, handovers, responsibilities
 - Handover work process with sign-offs by maintenance and operation
 - Training and theme weeks for flange tightness



How do we maintain awareness and manage near misses

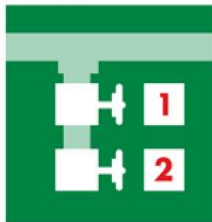
- Embedded in daily operational routines like shift handover, handover to maintenance, handover from maintenance, etc
- Open culture with lots of near miss notifications – Learner Mindset
- Near miss notifications are used to have an open discussion on PSF observations, classifying and feedback to employees



Examples from near miss to PSF

1

Always use two barriers for hydrocarbon and chemical drains and vents



2

Do not leave an open drain or critical transfer unattended



3

Take interim mitigating measures in case of failure of Safety Critical Equipment



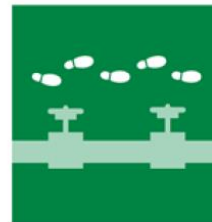
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For all defined high risk activities, follow the procedures and sign off after each step

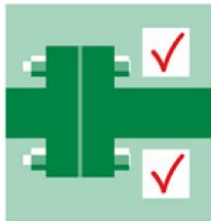


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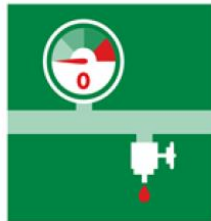
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Respond to critical alarms

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Near Miss:

Wrong studbolts in flange of vessel xyz



Near Miss:

Pressure gauge was mounted back without valve



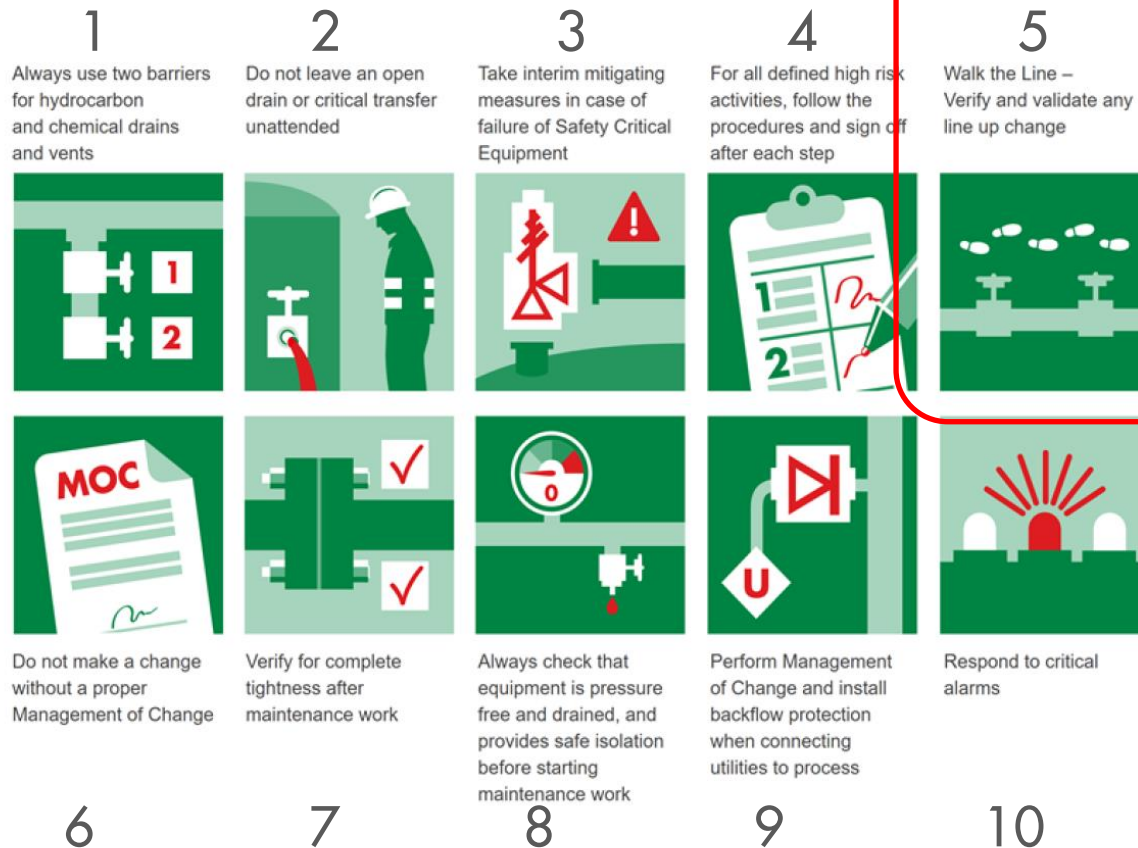
Near Miss:

Heat exchanger was spaded at wrong location



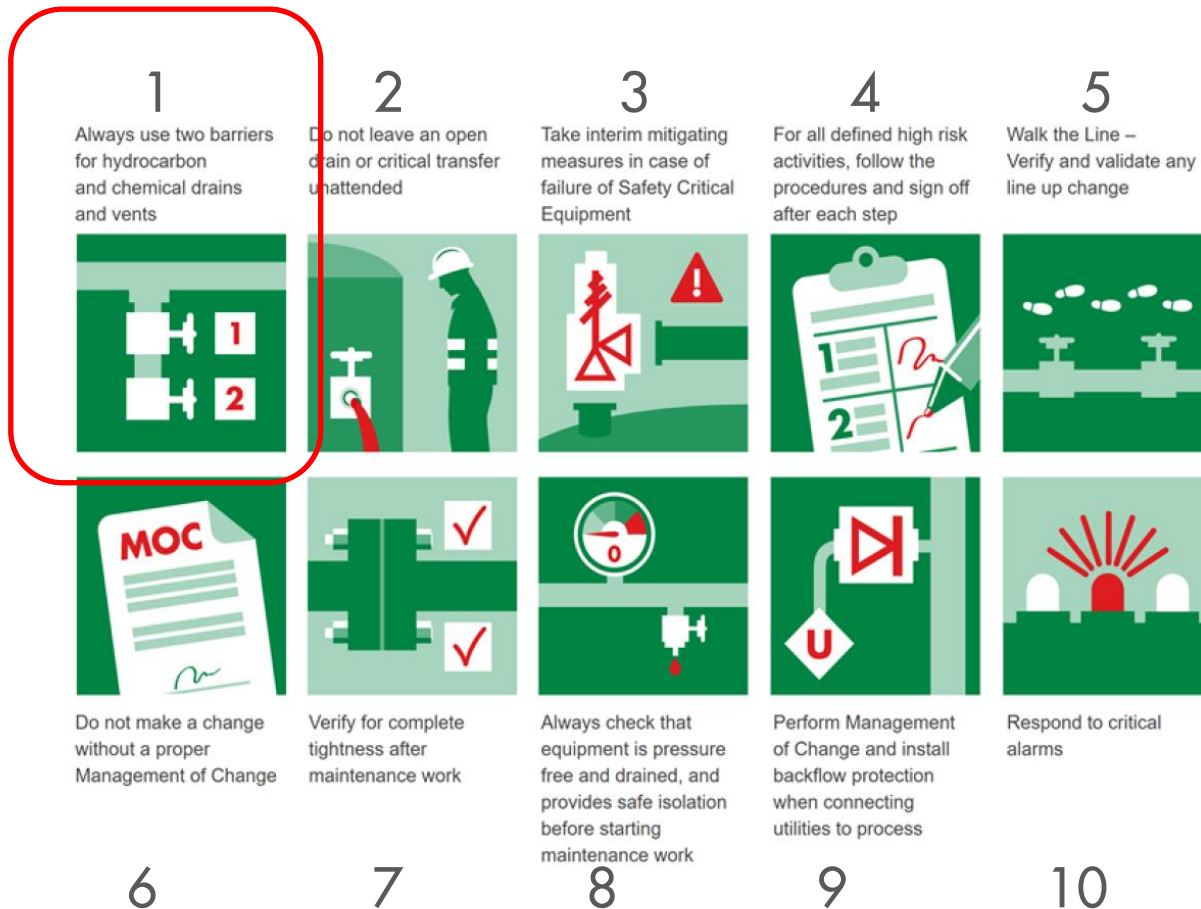
Near Miss:

Unit was tripped upon switching pump xyz



Near Miss:

Leak observed at drain of heat exchanger xyz



Near Miss:

Found a loose studbolt in flange



Questions and Answers

Q&A

