PROCESS SAFETY

FUNDAMENTALS ENABLING FLAWLESS FIELD EXECUTION

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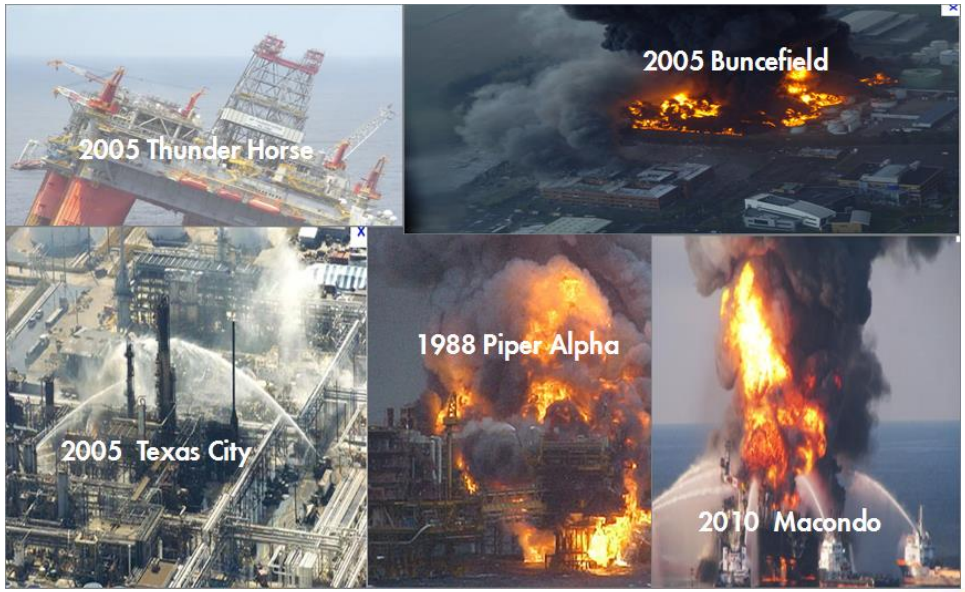
Quote: **Why 'Safety Cultures' don't work** (*Andrew Hopkins*)

"Oil and gas companies will never be high-reliability organizations if they rely on campaigns to change hearts and minds on the operational front line. Instead, they must identify the obvious precursors to catastrophe and get serious about eliminating them – led firmly from the top."



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HRO example:

Air Traffic Controller Industry is obsessed with 'breakdown of separation' which is their single most precursor to a catastrophic mid-air collision.

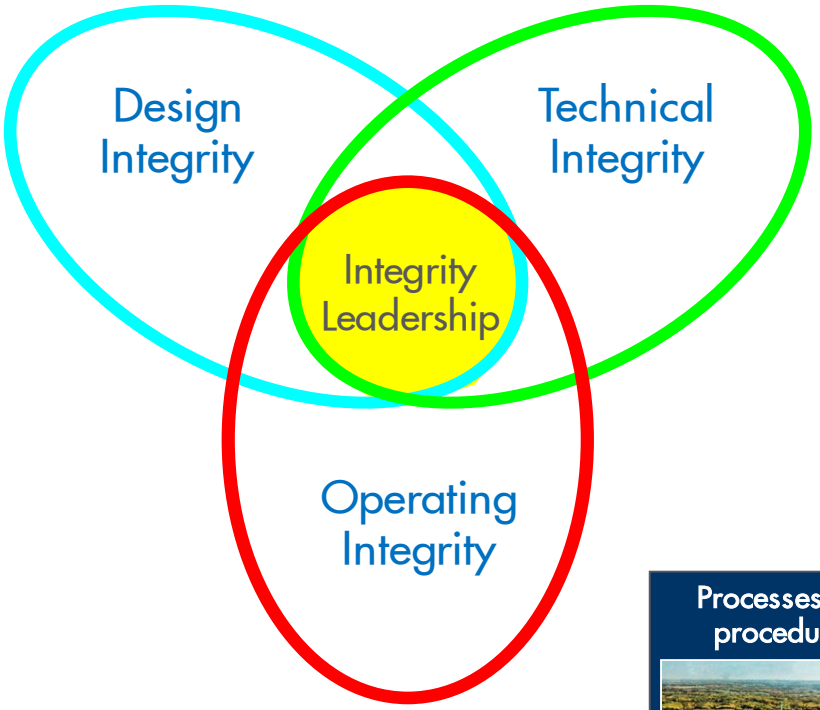
- What is the equivalent in the process industry?
- How do we get to control the precursors?

TYPICAL INDUSTRY APPROACH TO PROCESS SAFETY

We design and build such that asset integrity and process safety risks are as low as reasonably practicable (ALARP)

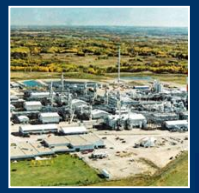
Design HSE case

Design & engineering practices



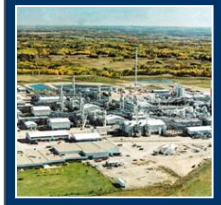
We maintain the hardware barriers over the lifecycle of the asset

Ops. HSE case



We work within the operational barriers

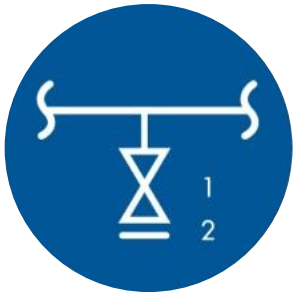
Processes and procedures



How confident are you to say

"Our assets are safe – and we know it!"

CONTROL PRECURSORS TO PROCESS SAFETY



Always use two barriers for hydrocarbon & chemical vents and drains

Do not leave an open drain or (un)loading activity unattended.

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

Source:

Analysis of large and catastrophic process safety incidents in de process industry

Analogy:

Think of the Life Saving Rules which has a significant impact on personal safety

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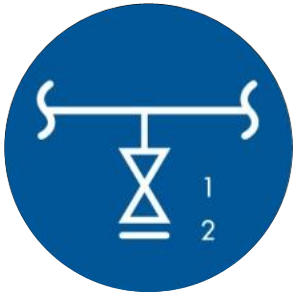

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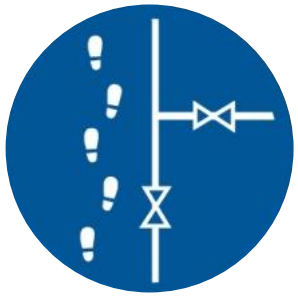
Take interim mitigating measures in case of failure of Safety Critical Equipment

Follow the SU/SD procedures and sign off after each step



Check the Line – verify and validate any line up change

Do not make a change without proper MoC

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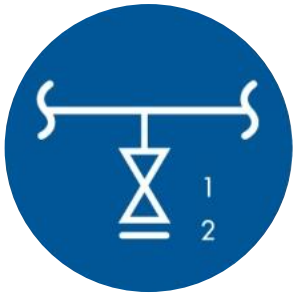

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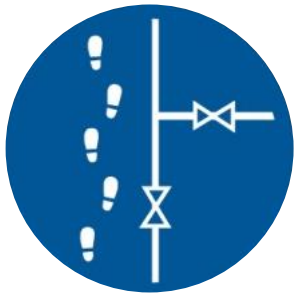

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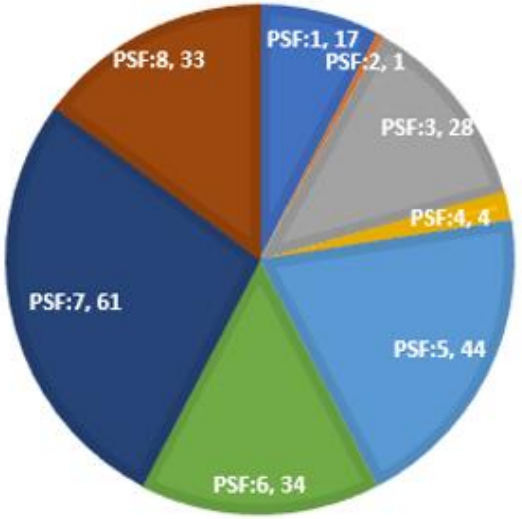
Do not make a change without proper MoC

Verify for completeness of tightness after maintenance work

Always check that equipment is pressure free and provide safe isolation before starting maintenance

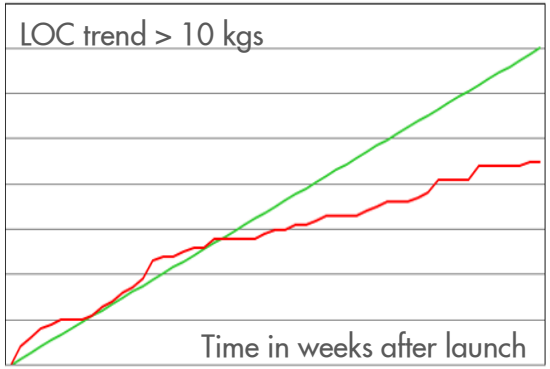
Perform MoC and install backflow protection when connecting Utilities to Process

(HOW) DO THE PS FUNDAMENTALS WORK?



Critical success factors

- Role leadership: focus on learning, not penalizing
- Supervisors must know dilemmas of their workers
- Willingness and motivation to report
- Ability to recognize 'deviation from the norm'
- Reward and recognize, and Just Culture applies



Outcomes

- Zero tolerance to any loss of containment
- Clarity on the rules (Standard Operating Procedures)
- Procedures in language for users in the field
- Improved understanding of organizational weaknesses
- And a reduction in LOCs !!!

SOME IMPLEMENTATION INSIGHTS

Contractors are critical

- Total number of field hours often higher than own staff
- Invest in their ability to recognize PSF deviations

Organisation forgets the reason behind the rule

- Human nature normalizes risk
- Feedback loop to training programs

Performance culture

- Understanding the norm sets the flawless performance standard, and not only for safety
- Motivation, the return of Pride in Perfection

Thank You !

Q&A and Discussion