



Break-Out Session 3

The Role of SPIs in Safety Performance

Group 1

*Please save under a different name, e.g.
"Break-out Session 2_Group 1_Presentation"*

Industries you chose to evaluate:

1. Petroleum refineries
2. Chemical manufacturing single-site operator (often speciality chemicals)
3. Hazardous chemicals end-user – electroplating, metals processing

1. How should SPIs look in each industry?

Refineries



Refineries should definitely have SPIs

Examples of SPIs

- Loss of containment
- Hydrocarbon leaks
- Degradation/corrosion rates
- Management of change
- Contractor management
 - Example (Finland): Risk assessment did not detect linkage with other tank (not isolated) and there was an explosion
- Hazard identification and risk assessment for hot and cold work
 - Example (Sweden): Old tank, not supposed to be anything in it, but exploded when work began
- Work permits: How many issues? Results of audits of permit system
- Hazop: Audit of hazop, results could be an SPI, or frequency of audits, comparison to incident records

(To be continued ...)

Continued - Refineries



- Audit of MoC process: e.g., results, frequency, significant MoCs/All MoCs
- Ageing – Inspection of design life, documentation, do you know what the equipment does?
 - UK Ageing plant delivery guide – all guides have SPIs
- Inspection programme – on schedule?

Need to see a change in focus of SPIs over time

New refineries have different SPIs than old ones

Typical strengths and weaknesses

- Refineries are very large.
- There are different ways to get feedback including SPIs (accidents, maintenance, looking at barriers in a scenario)
- It is important to see follow-up to the feedback

2. What kind of insights do you think the SPI can provide for the inspection in a typical site in each industry?



Single site, small company chemical operator

Batch reactor examples of SPIs

- Numbers and type of errors in quality of product
- Also, identifying the source of errors (e.g., training, procedures, shift, etc.) and possible patterns could be useful
- Could be useful also for explosives manufacturer

Understand what they are worried about and check if they have a good measure for it

SPI can demonstrate whether the site knows safety critical equipment, processes?

- Do you know what is safety critical?
- How are you monitoring it?
- If there is an SPI, is it a relevant indicator?

Continued next slide ...

Single site chemical operator – cont'd



Strengths and weaknesses

- SPIs may not be helpful if they lack competence or good leadership
- Ownership change may be frequent
- Follow instructions of the inspector without understanding

UK new delivery guide on leadership - Educate first and then enforce!

3. Typical strengths and weaknesses industry in 1) selection of SPIs and 2) implementation



Electroplating, metallurgy sector

- Metallurgy sector does not often have SPIs for process safety
- Major concern is environmental or occupational health risk
- Do not “live” process safety
 - Management commitment to safety may be low
- Could benefit from indicators but they don't have the mindset
- Before talking about SPIs, inspector may work on raising site awareness first, e.g.,
 - Start with basic hazard identification – have them identify 1 or 2 important risks and build on that
 - Try to make links to existing measures, e.g., industrial hygiene, environmental risks
- Could use SPIs on quality of production