Swiss Cheese Challenge: Creating Dialogue on Process Safety Dilemmas

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Agenda

➢ Introduction – Basis of Development
➢ Methodology and Demonstration
➢ Observations and Learning
➢ Conclusion
➢ Questions & Answers
Introduction

Safety Culture as integral part of safety improvement journey
➢ Step Change in Safety through Engineering, Systems, Behaviours

Shell’s Process Safety Narrative
➢ Leaders are expected to understand Process Safety risks and the management of it.

Objectives

Need a platform that can achieve the following:

➢ Awareness of Process Safety risk:
  ➢ Bowtie approach and barrier thinking
  ➢ Cumulative risk

➢ Understanding of “right safety culture”:
  ➢ Appreciation of dilemma in risk management
  ➢ Enabling honest and open conversation

Methodology – Swiss Cheese Challenge (Part 1)

➢ Participants in group of 6-10 to compete for fictional prize
  ➢ First task to “build an offshore platform”.
  ➢ As they “operate the platform”, they are presented with typical scenarios along with potential solution options.
  ➢ Each option has its Consequences and/or Gains.
Methodology – Swiss Cheese Challenge (Part 1) Demonstration

### Scenario

- The platform has just started up production after replacing 8 new piping.
- After 10 hours of production, one of the piping parted, resulting in massive hydrocarbon release which triggered a platform emergency shutdown.
- Uncertainty on root cause(s) of the failure as the investigation is on-going.
- From the record, all 8 new piping were supplied by the same manufacturer.

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<tr>
<th>A</th>
<th>B</th>
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<tbody>
<tr>
<td>Isolate the parted piping</td>
<td>Delay start up until all 8 piping are replaced with newer ones.</td>
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<tr>
<td>Continue production with the remaining 7 piping.</td>
<td>Enhance quality assurance &amp; quality checking process on piping fabrication.</td>
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Methodology – Demonstration (continued)

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<th>A</th>
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<tbody>
<tr>
<td></td>
<td>• Remove 2 Preventive Barriers</td>
<td>• No changes to platform</td>
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<tr>
<td></td>
<td>• Earn 4 Cargoes</td>
<td>• No Cargoes gained</td>
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Outcomes Examples – Gains and Consequences

Removal of “Barriers” that may cause “Offshore Platform” to collapse

Live Leaderboard
Methodology – Demonstration (continued)

Will you choose A or B?  

At the Start

Will you choose A or B?  

After few scenarios

Will you choose A or B?  

Towards the End
Methodology – Swiss Cheese Challenge (Part 1)

➢ Development of the Scenarios and Messaging
  ➢ Based on simplified actual past incidents
  ➢ Balance in terms of Gains and Consequences
  ➢ Consequences are relevant from perspective of Bowtie methodology

![Barrels](image1.png) VS ![Danger Symbols](image2.png)
Methodology – Reflection Conversation (Part 2)

➢ Part 2 – Reflection Conversation and Debrief
  ➢ Driven by actual experience

➢ Setting up the Scene
  ➢ Transition into reflective mood

➢ Reflective Conversation
  ➢ Facilitator to focus on insights related to dilemma and safety culture & behaviours.

Have I assessed the Consequences correctly?

Are the Rewards gained worth the risk I took?

Is this choice aligned with my Company’s expectation?

On hindsight, would I have chosen differently?
Observations and Learning

➢ Opportunity for Safety Leadership
  ➢ Creating space for open, honest conversation on dilemmas.
  ➢ Informal leaders empowered to do what is right.

➢ Managing Cumulative Risk with risk visualization
  ➢ Easier to appreciate Bowtie concept with visualization.
  ➢ Risk management is not an isolated decision making scenario, it is of Cumulative Risk.

➢ Gamification as tool to enhance learning, ESPECIALLY for management
  ➢ Simple and fun while effective.
  ➢ Gains and live Leaderboards creates healthy competition.
  ➢ Appreciation of past incidents and learning from it.
Conclusion

➢ Suitable for participants of different background

➢ Simple and impactful tool for high level learning of Process Safety Risk and Cumulative Risk

➢ Experiencing dilemma and talking about it right after help creates deeper conversation on safety culture and behaviours
Questions and Answers