Accidents are not caused by a lack of knowledge, but by a failure to use the knowledge that is available.

Trevor Kletz
Basics ...

• Bigger data & better technology are not preventing incidents.
  ❌ Are we focusing on wrong Humans & Hardware?

• Process Safety initiatives & culture changes come from top down.
  ❌ Knowledge not getting to those who need it most (quickly)

• Gamification & E-Learning are ‘fashionable’.
  ❌ Can be expensive and exclusive

• Cards are low-tech, broad-reaching knowledge exchange platform.
  ✔ Accessible
  ✔ Memorable
  ✔ Adaptable
Improve Awareness & Catalyse Conversations

• **KNOW YOUR ENEMY!**
  • Loss of Control or Containment

• Simple principles:
  • **REMEMBER** Events
  • **RECOGNISE** Cause (Threats)
  • **RESPECT** Controls (Barriers)
  • **REPORT** Concerns
  • **RESPOND** (to) Feedback
  • **RECOVER** Protection
Scenarios (Bowties) Enhance Understanding

1. Do you **UNDERSTAND** what can go wrong?
2. Do you **KNOW** what your systems are to prevent this from happening?
3. Do you have information to **ASSURE** you that they are working effectively?

• Separate pages with one LoC Event per sheet & typical:
  • **Causes** (Threats)
  • **Controls** (Barriers)
  • **Effectiveness/Vulnerabilities** (by Type)
  • **Degradation Factors**

• **Physical posting**
  • e.g. Control Rooms, Canteens, Workshops or Meeting Rooms

• **Online posting**
  • e.g. Intranet, SharePoint, Newsletters
Barrier Focus & Scenario Development

Relative Risk Ranking
- Release Potential
- Potential Release

Barriers are imperfect, deteriorate & can be defeated
Management Systems sustain their Presence & Performance

Loss of Control
- Asset
- Activities

Loss of Containment
- Energy
- Materials

Consequences
- People
- Planet
- Plant
- Production
- Product

Overfilling
Material, Activity or Energy with potential to cause harm
Major Release
High Risk

Barrier Focus & Scenario Development

Failure to control flow or volume
Moderate Potential

Control of Operations
High Vulnerability
Active Human
Personnel not competent or capable
Procedures missing or inappropriate

Process Control (Flow / Level)
Medium Vulnerability
Active Hardware
Disabled or in manual mode
Equipment not maintained
Incorrect setting

Process Alarms (Level)
High Vulnerability
Hardware + Human
Equipment not maintained
Incorrect setting

Overfilling Protection (Level Sensors)
Medium Vulnerability
Active Hardware
Disabled or in manual mode
Equipment not maintained
Incorrect setting

Process Safety Cards © Process Safety Integrity 2021
Operational Opportunities

• Passive learning (osmosis) via informal games.
• Toolbox Talks e.g. explain your experience of the card you’ve been dealt.
• Quiz e.g. name the event on the card (no title).
• Surveys or Ballots
• Hazard Reminder e.g. attach relevant cards to Work Permits.
• Hazard Spotting/Surveys e.g. cards used to label vulnerable locations during walk round.
• Inductions e.g. Visitors or Outage/Turnaround personnel.
Quizzes & Surveys
Engineering/Management Opportunities

• Safety Moments e.g. discuss your role related to the card you’ve been dealt.
• HAZOP/PHA Validation e.g. ensure all deviations (cards) have been discussed.
• Dashboard e.g. incidents categorised by LoC type.
• Relate cards to Company/Industry incidents.
• Hazard Potential e.g. sum values of each card ... A = 11, K/Q/J = 10 & others numbered.
• Campaigns e.g. each week showcase specific event/card/topic.
Online Tables for Remote/Isolated Interaction
in'telɪdʒ(ə)ns (Noun) :
1. the ability to acquire and apply knowledge and skills
2. the collection of information of value
Work Safety Cards

Process Safety
• Loss of (Primary) Containment

PSM (Stewardship)
• EI, CCPS & OSHA Frameworks

Human Factors
• HSE PIF

Ignition Sources
• EN 1127-1

Occupational Safety
• ISO 7010

Chemical Safety
• NFPA & GHS

Process Safety Fundamentals
• IOGP 638

Road Transportation
• IOGP 365

Mining
• Surface & Underground

Drilling
• Offshore & Onshore

Wind Power
• Offshore & Onshore
Conclusions

• **Not a New Game !**
  • Knowledge exchange toolkit (Management ↔ Operations).

• **Not a New Strategy !**
  • Help deliver **YOUR** Process Safety (Asset Integrity) Initiative.
Thank you - Any questions?

www.ProcessSafety.cards

david.hatch@psintegrity.com

www.linkedin.com/in/dh04tch/