Remembering the past shapes our future

Trish Kerin
Director, IChemE Safety Centre

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Institution of Chemical Engineers
- IChemE

- International qualifying and membership body for chemical, biochemical and process engineering professionals
- 44,000 individual members across many sectors – including energy, engineering design & construction, chemicals & pharma
- ~90 year history, respected by governments, industry, educators, regulators globally
- Not-for-profit

http://www.ichemesafetycentre.org/home.aspx
IChemE

- Members in circa 120 countries
- Offices in Australia, UK, Malaysia, Singapore and New Zealand
- Substantial member numbers also in continental Europe, Ireland, USA, South Africa, UAE, Canada, etc
These are all of the companies that are or were in the past corporate members of IChemE
What do I mean by process safety?

- High consequence, low likelihood event
- Loss of control
- Different to OHS

Note loss of control, this is a clarification to the loss of containment that is traditionally used. Loss of control includes loss of containment and is broader so will include electrical events as well.
Some traditional examples

- Bhopal 1984
- Buncefield 2005
- Flixborough 1974
- Grangemouth 1987
- Texas City Refinery
- Deepwater Horizon 2010
- Longford 1998
- Seveso 1976
- Piper Alpha 1988
By traditional and non traditional she means oil and gas/chemical vs. industry in general
Impacts of catastrophic incidents

- Injuries and Fatalities
- Environmental Damage
- Disruption to Communities
- Reputation Damage to company and industry
- Legislative Reaction
- Impact on Business Performance
- Prosecution and litigation
This is an interesting slide that major accidents can be demonstrated to follow times of low oil prices and associated surges in new projects that are developed in fast execution (tight schedule, start production as soon as possible) environments.
These are typical of most management systems
Slide to attempt to demonstrate that causal factors for past accidents can be categorised by PSM elements/themes
An interesting exercise that we could undertake would be to map out past TC events/incidents by causal factor/PSM element and see where we would end up.
That all makes sense, so why do we still have repeat incidents

Good question
The example that Trish uses of watching The Sixth Sense for the second time helps explain the hindsight bias. The second time you watch the movie, you can see foreshadowing that you didn't the first time because you didn't know what was going to happen. Once you know what you know, you think that everyone should know but that isn't the case.
Impact of hindsight bias on learning from incidents

- Subjective beliefs are more accurate than one's own ability
- When we know the outcome, we can see exactly how it was done
- We miss the context of the decision more than the decision itself
- More important, the context of the decision than the decision

We can do an experiment, take a few examples of major accidents and create a series of questions and ask experienced people who haven't heard of the accidents to answer the questions and attempt to predict what they would do next.
A way to minimise hindsight bias

- Unlike other forms of bias, knowing it exists does not always mean it can be overcome
- Understanding context of decisions
- Start at the beginning, without knowing the outcome and follow the story

See the comment on the previous slide
After the questions are answered in the experiment, then a circumstance lens/frame can be added.
Telling the story

- The story needs to be compelling
- The audience should feel the pressure
Making decisions

- Give people a chance to make critical decisions in the story
  - They will often make the same decisions that lead to the incident given the shared context
  - This is confronting, we are used to thinking we would not make the same mistakes
  - Creates emotion in the learning, which can be an anchor
But we don’t learn from the past

• We keep having repeat incidents
• Something about the way we are learning is not working
• It is time to think differently…
• How can you present your learnings differently so they stick?
Adding value

- Reliability
- Community
- Profit
- Compliance
- Sustainability
- Reduced

1. Financial
2. Reliable plant - productivity
3. Reduced injury impact on workforce - productivity
4. Working with the community - community licence to operate
5. Environmentally sustainable
6. Compliance and reduced legal costs
Thank you

• Trish Kerin, CEng, FIChemE, FIEAust, Professional Process Safety Engineer, director IChemE Safety Centre
  - Email safetycentre@icheme.org
  - Phone +61 408 925 536
  - www.ichemesafetycentre.org
  - Twitter @TkerinTrish
  - LinkedIn https://au.linkedin.com/in/trishkerin