Learning From Disasters

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Learning from Disasters

- The Individual
- The team
- The Project or Plant
- The Site
- The Company
- The Stakeholders

Pre-event

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Event

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Post accident response

Mind sets and Attitudes

Causes **For Example:**

Selection of personnel

Coaching /training

Processes

Equipment

Management of change

Human Performance

Leadership

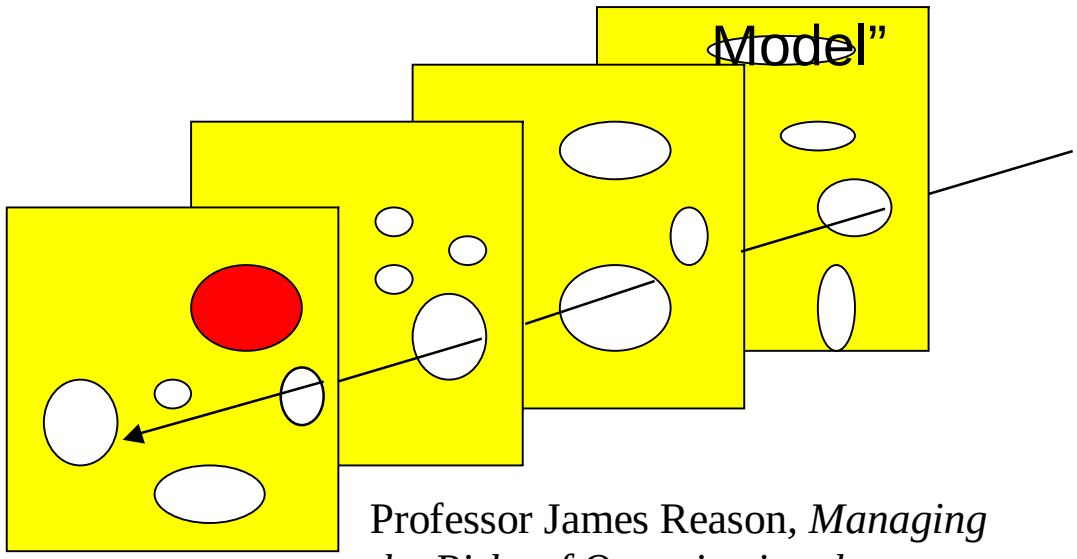
Values

Market Forces

Political Influences

Increasing difficulty in identification, reporting, and creating practical actions

"Swiss Cheese Model"



Professor James Reason, *Managing the Risks of Organisational Accidents, 1997*.

Events Studied

Have looked at five events in detail:

- Columbia (2003) (and Challenger) Shuttle Disaster
- UK Railway Accidents (1991-1999)
- Piper Alpha (1988)
- Longford Gas Explosion (1998)
- JCO Criticality Accident (1999)

Several more have been addressed, including other nuclear events (e.g. Wylfa, Davis-Besse, Paks)





Columbia (2003)

Foam collided with left wing causing damage. This led to disintegration of Shuttle during re-entry.

- **Loss of foam identified as special ‘topic of concern’ - known problem.**
- **Knew that the wing had been hit**

Columbia (2003)

- **Poor standards and risk assessments - “prove that it’s unsafe”, no “healthy fear of failure”.**
- **Informal “chain of command” developed, communication lines easily subverted, “a good news culture”.**
- **Major organisational change - contractorisation with erosion of “intelligent customer” focus and loss of corporate memory.**
- **Operational pressures on those making safety decisions, no effective and independent safety oversight.**
- **Image and ethos aimed at “faster, better, cheaper”, “stick to programme”**
- **Budget cuts/priority issues/schedule pressures from outside.**

Key Common Issues

- Maintaining competence
- Application of acceptable standards
- Questioning attitude
- Organisational “complacency”/Loss of focus/Organisational drift
- Poor communication
- Loss of “oversight”
- Management of change(often involving contractorisation)
- External pressures

Leadership

“Setting an example is not the main means of influencing another, it is the only way” *Albert Einstein*

Lessons (1)

1. Leadership

- Well communicated standards and expectations
- High visibility; “actions align with words”
- Demonstration that safety has priority; no “ turning a blind eye” because “to tolerate is to validate”
- Encouraging questioning and learning
- Need to be aware of these deeper root-causes and impact of organisational issues

Lessons (2)

2. Leadership Issues relating to Communication and Learning

- Listening to the workforce and encouraging a questioning attitude “If you really want to know how safe you are - ask your people”
- Raise awareness of risks, consequences and promoting the importance of “questioning and alert compliance”
- Promoting the need for excellence in communication over safety issues at all levels e.g. between shifts
- Encouraging learning which leads to - “the right message to the right people at the right time”

Lessons (3)

3. Alertness to “organisational drift”

- Continuous review against best practice
- Monitoring of range of “deeper” indicators, “not just headlines”
- Effective risk identification and management of change processes (particularly organisational)
- Reinforcement of the safety message when perceptions may be that its priority has become lower
- Questioning and challenging the impact of changes in an organisational “context”

Possible Issues for the IAEA

- Promote an understanding of these “deeper” but vital issues in all organisations with an impact on nuclear safety
- Develop common (“hard hitting”) messages about the vital role of leadership and the need for “alertness and challenge”
- Develop approaches and tools to assist and encourage self assessment and external scrutiny in the key areas
- Embed these issues in relevant IAEA processes and work, where possible to develop a “common language” and approach with other international organisations