Everyone is Responsible for Safety
But who is accountable and for what?

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Introduction

• Responsibility for Accidents
• Cognitive Biases
• Blaming Management
• Responsibility and the Law
• The Bow-Tie and the structure of accountability
• Conclusion
Accident causation

• People have accidents
• People should look out for themselves, but
• Supervisors should be looking out for them, but
• Managers should make sure that people and their supervisors can, but
• Senior management need to create the conditions under which people work, so
• Senior management is responsible for everything, but .....
Challenge the future
Factors contributing to incident causation

Corporate Governance: Culture
- conflicting objectives
- loose culture
- inadequate control of business processes
- scorecard driven
- unclear priorities
- condone non-compliance
- uncontrolled change management
- unclear expectations
- lack of consequent management
- not open for ‘bad’ news
- focus on commercial targets
- focus on cost reduction
- focus on slips, trips & falls (TRCF)

Organisation & systems
- inadequate standards & procedures
- lack of resources
- poor audits and reviews
- time pressure
- inadequate HEMP process
- workload
- maintenance back-log
- lack of competence
- inadequate design
- Inadequate monitoring & corrective action
- Pushing operating window
- unclear roles & responsibilities
- inadequate ER system
- production pressure
- lack of supervision

Immediate causes at sharp end
- human error
- poor communication and hand-over
- no intervention
- equipment failure
- non-compliance
- acceptance of high risks
- lack of hazard awareness

Incident
Human Error -

The Blame Problem

• If an accident happens people want to blame someone
  • Civil liability – who pays?
  • Insurance – can we refuse to pay?
  • Criminal responsibility - who goes to prison?

• Technical failures are usually seen as less reprehensible e.g.
  • Machines
  • Animals
  • Children
Blame and Punishment

- Blame is something that is attached to individuals
- Blame is associated with causality
- Bad people have bad accidents
- Bad people deserve to be punished
- Attribution means it isn’t us, but them
Cognitive Biases

- Attribution Bias
- Hindsight Bias
- Availability Bias
- Just World Bias
Attribution Error

• Fundamental Attribution Error
  • Individuals attribute causes of their own actions to external causes
  • They attribute causes of the actions of others to personal factors in those individuals

• Attributions are stronger in individualist than in collectivist cultures
Hindsight Bias

- Hindsight Bias (Fischhoff, 1975)
- One knew it all along
- Known branches are over-estimated
  - We now know the outcome, we didn’t before
  - The scenario now seems easy to generate and therefore was easy before the event
- In advance, bad outcomes are evaluated as less likely, especially if you feel you can control matters
- If you knew the best options, and could have controlled for them, then selecting any other must be incompetent!
Hindsight Bias
Bad People

- The World is Just
- This leads to ideas of accident proneness
- Bad things happen to bad people
- Also called Outcome bias
The Legal System – hard and clear

• Responsibility appears to be spread from top to bottom

• People accept it when it is easy and there are no problems
  • Except for a small group like pilots, surgeons etc

• When things go wrong it’s suddenly someone else’s problem

• The legal system can provide us with a model of how to define responsibility in terms of individual and corporate accountabilities
  • What really counts
  • What must you do
Corporate Manslaughter in the UK

- The Guiding Mind – Lord Denning
  - Also known as the Identification Doctrine
- Problem if the corporate mind didn’t know or intend the outcome

- Led, eventually, to a new law
  - Corporate Manslaughter Act 2007
- Did not apply to individuals
  - Already covered by HSE legislation
- Did apply to government departments!
UK Corporate Manslaughter law

• Duty of Care
• Gross Negligence
• Requires a fatality

• Court looks at management systems and practices across the organisation
• Test whether an adequate level of care was applied to the activity
• Explicitly aimed at senior management
• Also consider wider cultural issues, such as attitudes or practices that tolerated Health and Safety breaches
Evidence

• Easiest to collect at the bottom

• Hardest to collect and win at the top

• The “But for” test – a counterfactual – concentrates on the immediate causes and the front line

• Senior management may have been required to provide necessary resources, but even if....

• The “Even if” counter-argument can easily be applied to get managers off the hook
The Herald of Free Enterprise
Herald of Free Enterprise, Zeebrugge, Belgium, 1987
193 dead

UNDERLYING WEAKNESSES:

- inadequate supervision
- ambiguous safety procedures
- poor communication
Herald of Free Enterprise court cases

- Enquiry by Lord Justice Sheen
  - Her Majesty’s Commissioner of Wrecks

- Found against Capt Lewrie and Mark Stanley
- Could not punish the Townsend Thoreson management

- Criminal case against directors of Townsend Thoreson
- Thrown out by Lord Justice Taylor
- Reference to the Guiding Mind, there was no intention or expectation, despite being told of problems by the collected masters
Duty of Care

• If the Herald Case doesn’t succeed, what can you try?

• The new law proposed a specific Duty of Care

• The problem is now – How can you identify what is a duty of care
  • Who is accountable for what?
  • Is prediction necessary?
The Bow Tie

Management System
Tasks, Procedures, Responsibilities, Documents

= Risk Critical
Swiss Cheese

Hazard

Barriers or Controls

Underlying ‘System’ Weaknesses

WORK

Undesirable outcome
The Risk Landscape - Level 0

- Inadequate design of plant
- Improper construction of plant
- Improper operation of plant
- Injected Chemical over-temperature
- Incorrect Chemical specification
- Temperature Excursion in Process
- 5.4.4.1 Heating Chemicals in the Catalyst Heater
- Enhanced combustion within gas cloud (contained onsite)
- Projectile damage to product bulk storage
- Unignited pressure burst causing spread of hot liquid and gaseous product
- Building damage, possibly extending offsite
The immediate barriers - Level 1
USS Carl Vinson
Swiss Cheese in an Organization
Organisational escalation factors–Level 2
A more complete Level 2 analysis
Adding cultural and Regulatory factors – Level 3
Individual Accountabilities

• Individuals are responsible for identifiable activities and can be held accountable for their performance
  • *Only if they are adequately resourced*

• Individuals *can* reasonably be expected to
  • Exercise control – does something, checks, follows a procedure
  • Deliver a product or skill
  • Exercise supervision
  • Provide resources
# Levels and accountabilities

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<thead>
<tr>
<th></th>
<th>L₁ Front line operators</th>
<th>L₂ Line Management</th>
<th>L₃ Culture and Regulation</th>
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<tr>
<td><strong>Threats</strong></td>
<td>• Improper operations&lt;br&gt;• External conditions&lt;br&gt;• Variability in process</td>
<td>• Design problems&lt;br&gt;• Poor procedures&lt;br&gt;• Lack of training&lt;br&gt;• Insufficient necessary pre-conditions for operation</td>
<td>• Non-compliance&lt;br&gt;• Low or inappropriate priority setting&lt;br&gt;• Hands-off regulation&lt;br&gt;• Incompatible goals</td>
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<td><strong>(Escalating factors)</strong></td>
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<td><strong>Barriers</strong></td>
<td>• Detection&lt;br&gt;• Competence&lt;br&gt;• Design &amp; construction</td>
<td>• Provision of equipment, services, training and procedures</td>
<td>• Support for best practice&lt;br&gt;• Enforcement&lt;br&gt;• Mindfulness</td>
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<td><strong>types of control</strong></td>
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<tr>
<td><strong>Accountable</strong></td>
<td>• Front line individuals e.g. driller, driver, pilot, doctor, nurse, maintenance engineer</td>
<td>• Line management, supervisors, back-room staff</td>
<td>• Executive management&lt;br&gt;• Regulatory bodies</td>
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<td><strong>individuals</strong></td>
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Conclusion

- Responsibility turns out to be difficult to define when subjected to test in a court of law
  - Influence and span of control moves responsibility to the top
  - Evidence and counterfactual reasoning keeps the focus at the lowest levels

- Feeling responsible isn’t enough

- Accountability *can* be rigorously identified using the bow-tie approach

- No one gets off but everyone has to play their role, from top to bottom