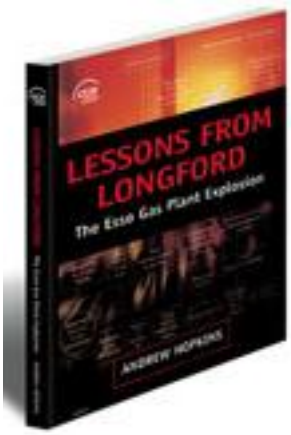
Safety Book Club

Questions for:

Lessons from Longford: The Esso Gas Plant Explosion



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Note: For some of these questions you may need to do some research, by asking other people, before you try to answer the question for the study group.
Not all chapters need equal time. For example, chapter 1 and 2 could be dealt with together.

Chapter 1
Introduction

1 Why were the Longford and Moura disasters treated so differently? Have you seen evidence of any of these processes in major accident investigations you are familiar with?

Chapter 2
Operator Error

1 What are some of the problems with the theory that plant operators are the causes of accidents?

2 What is the difference between active and latent failures? Do you think the incident analyses done in your organisation do a good job of identifying latent conditions (latent failures)? If not, what are some of the latent conditions they miss?

3 What is the connection between root cause and stop rule? Why are different stop rules relevant for different parties? What stop rule applies to causation in law?

4 The author says it is not useful to identify as a cause the fact that one came to work on the day of one's accident. Why not? What stop rule does the author suggest is at work here?

5 The author highlights a number of problems with the "competency based training" that Esso's operators had received. To what extent do these criticisms apply to the training in your organisation?

6 Why is "inadequate training" an incomplete explanation?

Chapter 3
The Failure to Identify Hazards

1 What is a "step back 5 by 5"? Do you have a similar process in your organisation (e.g. tailgate, pre-start hazard ID process)? What are its strengths and weaknesses?

2 What exactly is a HAZOP? How does it differ from a HAZID?

3 What was the limitation of the HAZOP, according to Esso?

4 What did the Royal Commission say about Esso's argument?

5 What is the logical flaw in Esso's argument, as identified by the author?

6 Why is interconnectedness a hazard? Why was it at Longford? Can you think of examples in your own environment?

7 Why can change be a hazard? The author identifies two management-of-change (MOC) failures, one concerning a change in the technical process, the other involving change in staffing. Are changes in staffing and other organisational changes subject to MOC processes in your organisation? If not, should they be? If so, are these MOC processes as thorough as they are for technical or process change?

8 What are the arguments for ensuring that hazards which give rise to rare but catastrophic events should be managed centrally? Are there any counter arguments? Where do you stand on this?

Chapter 4
Ignoring Alarms: Necessary Violations?

If you are not familiar with the way operators respond to alarms in your organisation, you might need to ask some of them before you respond to these questions.

1 "Operating in alarm mode was sometimes necessary to meet the gas order of the day". In your work environment are there times when it is necessary to operate in alarm mode to get the job done?

2 Are there times in your organisation where you are operating outside the normal operating envelope (say in alarm mode) without knowing how far outside you are?

3 Does your organisation suffer from alarm overload (alarm flooding)? How do operators respond to alarm overload in your organisation?

4 More generally, are there situations in your organisation where people need to violate procedures in order to get the job done?

5 Have such violations been normalised?

6 Is there a culture in your organisation that normalises violations of rules and procedures?
What is management's response to all this?

7 Can you think of any informal, experience-based rules that have grown up in your organisation that allow you to violate the formal rules?

8 What does the author mean by formalising the informal? How does the author suggest that this be done? Is it done in your organisation? Could it be done? How?

9 What does the author mean by redundancy? Why does high reliability depend on

redundancy?

10 Are experts readily available for consultation in your organisation, or are they remote and unlikely to be consulted in difficult situations?

11 How closely do you think experts are monitoring what operations people are doing in your organisation?

Chapter 5
Communications: Problems and Solutions

1 Does your organisation have a "mumbling environment"?

2 Do you have routine end-of-shift logs or reports that are handwritten? If so, is there a system to transfer important issues in these reports into an electronic data system? If so, is it used? If it is not being used, why not?

3 How good is communication between shifts in your organisation?

4 Does your organisation have an incident reporting system? If so, what gets reported into it? Are process upsets and problems reported into it? What sort of information of potential relevance to major hazards (process hazards) is NOT reported into it?

5 What makes people reluctant to report? What might be done to encourage reporting, especially reporting of incidents relevant to major hazards?

6 Do reporters get feedback? Is it individual or is it more general (e.g. statistical summaries)? How useful is it?

7 What are the pros and cons of anonymous reporting systems? Do you think your organisation should have one?

Chapter 6
Esso's Approach to Safety

1 Why are injury rate statistics likely to under-estimate injury rates?

2 Why are injury rates not a good measure of how well major accident hazards are being managed?
(Note that the author refers to positive and negative indicators. These are also referred to as leading and lagging indicators.)

3 What are some of the indicators of nuclear safety in use in the nuclear industry? What indicators might be used in your organisation to measure how well major hazard risk is being managed? Thinking about the indicators you have just mentioned, to what extent are they at risk of being under-reported? How easy would it be to manipulate such indicators, in the way that injury stats are sometimes

manipulated? Would you describe the indicators you have chosen as leading or lagging? Does it matter?

4 What is the best way of thinking about safety culture, according to the author?

5 What are the reasons we should try to avoid using poor safety culture as an explanation for accidents?

6 How did the focus on LTIs at Esso distort maintenance priorities?

Chapter 7
Auditing

1 Why is the author sceptical about the words "challenges" and "improvement opportunities"?

2 How did the BHP audit differ from the Esso audit?

3 Do you think major audits in you organisation are essentially good news stories as they were at Esso? Or do they get to the bad news, as happened in the BHP audit?

4 What are some of the problems with safety system audits? How can such audits be improved?

5 What do you think of the idea of audit as challenge?

Chapters 8 and 9 may not be useful for group discussion for most audiences, but they are nevertheless worth reading.

Chapter 10
Selecting Causes

For most audiences it is only worth focussing on pp120-125.
Examine the causal map on p122.

1 Can you explain the meaning of the arrows in the diagram?

2 Identify the boxes in panels 2 and 3 that might be applicable at your workplace.

3 Looking at the boxes in panel 2 that you have identified as relevant to your workplace, what specific problems have these led to at your site?

Chapter 11
The Absence of Mindfulness

1 What is an HRO?

2 How do HROs differ from other organisations in their attitudes to (1) large scale failures, (2) small scale failures?

3 In what way is mindfulness an organisational characteristic rather than a characteristic if individuals?

4 How did Esso's behaviour show a lack of mindfulness?

5 Do you think your organisation is similarly lacking in mindfulness?

6 Do you think your organisation is good at learning lessons from elsewhere?

7 Why does the author say efficiency is the enemy of mindfulness?

8 Looking at the lessons the author identifies on pp147-148, how many of these are relevant to your organisation? Can you think of particular situations in your organisation where these lessons need to be implemented?

Note to book club organiser. If you feel inclined, please provide feedback to info@futuremedia.com.au on the value of the various questions, and list any questions added.