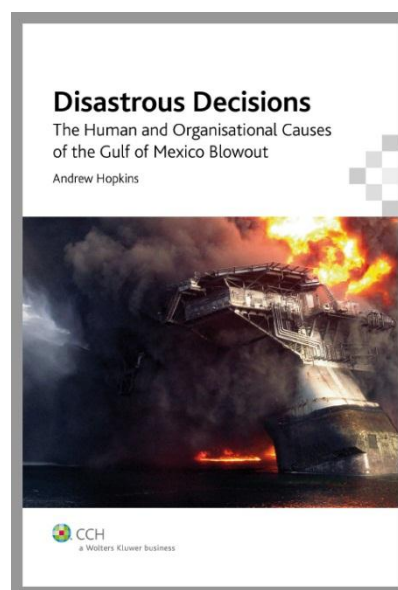


Safety Book Club

Questions for:

Disastrous Decisions



Prepared by Andrew Hopkins, July, 2013

Chapter 1

Introduction

- 1 According to the author, why is “why” such an important question? Can you think of any additional reasons?
- 2 The word “cause” can be understood in many ways. What is the meaning of cause in the Swiss cheese model?
- 3 What are the implications of the Swiss cheese model for the idea of “root cause”?
- 4 Why does the Swiss cheese model make it difficult to allocate blame?
- 5 According to the author, what is the problem with the simple Swiss cheese model?
- 6 In what way is the model in figure 1.4 an improvement?
- 7 What is the significance of “latent condition pathways”? Can you think of any examples where latent conditions have contributed directly to accidents in this way?

Chapter 2

Tunnel Vision Engineering

- 1 In what way were the engineers tunnel visioned? What do you think contributed to their tunnel vision?
- 2 Is decision making in your organisation similarly blinkered? If not, why not?
- 3 What was the risk/reward equation? What risks did it overlook?
- 4 Think about the last minute anomalies. How would your organisation respond to such events? Would they be reported, and acted on, or would they be dismissed, as they were at Macondo?
- 5 Does your organisation hold individuals accountable for decisions or are decisions made by consensus, as they were at Macondo? If the latter, does this mean that no one takes real responsibility?
- 6 Where decisions involve chains of signatures, as was the case with management of change at Macondo, does this improve the quality of decision making or does it simply diffuse responsibility?

Chapter 3

Confirmation Bias: the Well Integrity Test

- 1 What is the meaning of *confirmation bias*? Can you provide examples from your own organisation and your own personal experience?
- 2 What is the meaning of *normalisation*? Does this happen in your organisation?
- 3 What is *group think*? Are doubters in your organisation pressured to conform to the dominant view?
- 4 In so far as confirmation bias, normalization and group think are present in your organisation, what should be done to combat them?
- 5 The BP company men on the rig who took part in the reduced pressure test were prosecuted for criminal negligence. Do you think they were to blame? Why? Why not?
- 6 How can organisations be more certain about the competence of their employees?

Chapter 4

Defence in Depth

- 1 What is the philosophy of defence-in-depth?
- 2 Do you think people in your organisation understand this philosophy and are committed to ensuring that every defence is as effective as possible? Or do they in practice think that one good defence or barrier is enough?
- 3 Why did all the pre-blowout barriers fail?
- 4 The BOP only functioned reliably if a certain condition or assumption was met. What was this assumption? Similarly, the validity of various risk assessments mentioned in the chapter depended on certain assumptions. What were these assumptions?
- 5 How can organisations ensure that everyone is aware of the assumptions on which the equipment and risk assessments depend?
- 6 *If you work in the drilling industry....*
It turns out that the failure to monitor flows after a well has been cemented and tested is quite common in the industry. Do you have positive evidence in your operations that flows are properly monitored when risers are being displaced?
- 7 In what way is a bowtie a generalisation of the Swiss cheese model?

- 8 What does the author mean by fantasy documents? Do you think that the plans in place in your organisation to deal with rare but catastrophic events are fantasy documents in this sense? Why do you think this?
- 9 Does your organisation have a risk matrix, similar to the matrix on pp. 182-183. Using either your own matrix or BP's, focus on the likelihood categories and consider the following:
 - (i) Are the definitions unambiguous, i.e. is it clear what decision is to be made?
 - (ii) Do you think different people would agree on the likelihood of various events? You might like to describe some hypothetical event and get some of your colleagues independently of each other to rate the likelihood. Then compare the ratings.

Chapter 5

The Meaning of Safety

- 1 What is the distinction between personal and process safety?
- 2 Why does the author introduce the term "major accident hazard"?
- 3 Does the term "process safety" fit well in your organisation or would it be better to talk about major accident hazards and major accident safety?
- 4 What is wrong with using injury statistics as an indicator of how well major hazards are being managed?
- 5 Your organisation probably has HSE or HSSE or SHE managers. Does their job include process safety? If not, who in the organisation has special responsibility for process safety? Who, if anyone, would have special responsibility for whether front line operators are complying with procedures relevant to process safety, e.g. start-up procedures?
- 6 What is a behavioural safety program? Why does the author recommend that behavioural safety programs be extended to cover process safety risk? How might this be done?

Chapter 6

Choosing the Right Measures and Making Them Matter

- 1 What precisely is a loss of containment event, according to API 754?
- 2 In some companies safety indicators are included in pay systems and/or performance agreements.

Does this have unintended consequences, such as suppressing reporting?
How effective do you think these indicators are in focusing attention on safety?

- 3 In some companies the indicators of safety include an indicator of process safety or major hazard risk, such as loss of containment.

How effective do you think this is in focusing attention on major hazard risks?
Can you suggest other indicators that might be more effective?

- 4 *Precursor events*

What does the author mean by precursor events?

Identify a major accident event that could occur in your operation.

Next, identify the precursors to this event (e.g. isolation failures, procedural violations, exceeding the operating envelope, gas leaks, kicks and/or cement failures in drilling, hard breaking for road tankers, engine failure or mooring failure or navigation failure for floating vessels, and so on.)

Could any of the precursors you have selected be used as indicators of how well you are managing the risk of the particular major accident event you have identified?

What unintended consequences might there be of using these indicators in bonus pay systems?

Chapter 7

Organisational Structure

- 1 Can you locate your organisation on the spectrum that runs from centralized functional at one end, through matrix, to decentralized business units, at the other end?
- 2 If your organisation has the characteristics of a matrix, does this make it difficult to work out who is accountable for decision making? Why? Why not?
- 3 How does your organisation ensure that people providing specialist technical services, such as engineers, are not compromised by the commercial pressures that affect line managers? For example, are they accountable up separate functional lines?
Is there a functional line responsible for audit and compliance, as in the case of BP's Safety and Operational Risk Function?
How effective are these mechanisms for ensuring that technical decisions are not compromised by commercial considerations?

Chapter 8

Learning

- 1 What is corporate memory? How can it be improved?

- 2 What is the difference between experience-based learning and theoretical learning? Why is this important?
- 3 Does your organisation learn effectively from its own incidents? If not, what more needs to be done?
- 4 Does your organisation learn from major incidents occurring in other companies? If not, what more needs to be done?
- 5 How could the story telling strategy be introduced into your organisation to improve the learning from incidents both internal and external?
- 6 One major oil and gas company has identified a set of “process safety basic requirements”, each derived from one or more major accidents. They are as follows:

Basic requirement

Safe siting of occupied portable buildings
Emergency shut-down valves on platform risers
Temporary refuges
Permit to work

Management of change
Avoid liquid release to atmosphere
Avoid tank overfill followed by vapour cloud release
Avoid brittle fracture of metallic materials
Alarm management

Management of sour gas (H₂S)

Deepwater well design and construction

Relevant accidents

Texas City
Piper Alpha
Piper Alpha
Piper Alpha, Motiva,
Grangemouth
Flixborough, Chernobyl
Texas City
Bunsfield
Longford
Longford, Three Mile Island
nuclear reactor
Chuangdongbei blowout, Gao
Qiao
Macondo blowout

Take one of these basic requirements, locate a report on a relevant accident, identify how the basic requirement was violated and what the accident teaches us about the basic requirement. Present your findings to the group.

Take one of the accidents identified by Trevor Kletz in his book, *Learning from Accidents*, that is relevant to your work. Explain the accident and lessons learnt to your group.

Take a recent incident description that has been circulated at your workplace, locate a more detailed incident report and tell the story to your group.

Chapter 9

Management Walk-arounds

- 1 What do managers do on walk-arounds at your facilities? Do they get to the important issues on their walk-arounds? If not, why not?

- 2 Identify the differences between the two walk-around strategies described in the chapter?
Do you think managers should try to stick to one or the other, or is it sensible to try to combine them?
- 3 What stops the reporting of bad news in your organization?
- 4 “Challenge the green, embrace the red”. This slogan refers literally to score cards, but more generally it refers to how management should respond to news, good and bad. What practices might this company develop to challenge the good news and encourage the reporting of bad news?

Chapter 10 Regulation

This chapter is addressed to regulators and will be irrelevant for many reading groups.

If you are aware of the activities of regulators at your site:

Do you think they are focused on the most significant issues?

If not, how might their effectiveness be improved?

Chapter 11 Popular Accounts

- 1 Do you think BP was an unusually reckless company?
- 2 Do you think this accident was made inevitable by technical difficulties of drilling the well?

Chapter 12 Conclusion

This chapter identifies a wide array of factors that contributed to the disaster.

Can you identify a few that you would regard as the most significant?

Why have you made this selection?

What should be done about these factors you have selected to reduce the risk of a major accident event?

Disastrous Decisions books are obtainable from FutureMedia.

FutureMedia Pty Ltd, Level 3, 75 King Street, Sydney NSW 2000 Australia
t: +61 2 9279 4499 | info@futuremedia.com.au