Process Safety
Responsibility and Accountability

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Synopsis

- One Man's Experience – Brian Harris
  - Joint Managing Director at Company HQ
  - Double Fatality at Explosives Factory
  - Regulatory Investigation
  - Questioned about Personal Responsibility

- His Response
  - Document Experience as Advice to Others
  - Paper in Loss Prevention Bulletin
  - Self Assessment Toolkit
  - Keeping the Issue Alive
The Company

- Nobels Explosives Company Limited
- Wholly Owned Subsidiary of ICI plc
- Main Site at Ardeer, SW Scotland
  - 2500 employed
- Roburite Works near Wigan, NW England
  - 250 employed
- Cookes Works, at Penrhyndeadraeth, NW Wales
  - 100 employed
The Company

Nobels Explosives Head Office and Manufacturing Site, Ardeer

Distance: 560 km (350 miles)
Driving Time: 7 hours

Cookes Works, Penrhyndeudraeth
Cookes Works

- Making Nitroglycerine Based Explosives
- Three basic processes in separate buildings
  - Nitration of glycerine with mixed acid
  - Mixing of nitroglycerine with kieselguhr, nitrocellulose, aluminium powder and salt to produce gelignite
  - Cartridging of the gelignite in paper wrapped ‘sticks’
Cookes Works

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The Accident

- Mid-morning Monday 14th June 1988
- An explosion in one of the two mix houses
- Two process operators missing
- Some fires and secondary explosions
- Second mixing house undamaged and holding nitroglycerine for the next batch
The Damage

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The Damage

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The Investigation

- Regulatory body – Her Majesty's Explosives Inspectorate of the Health and Safety Executive
- Looked at:
  - **People** - inappropriate behaviour due to ignorance, lack of attention or deliberate intent;
  - **Plant** - inadequate design or poor maintenance;
  - **Procedures** - inadequate or poor compliance.
- Considered both individual and corporate culpability
The Outcome

- The most likely cause of the explosion was a foreign object entering the mixer with the raw materials - a plant deficiency
  - Metal detectors used on raw materials prior to entry into mixing processes
- The men were killed because they were in the wrong place. They were not following the prescribed procedure - a people/procedures deficiency
- During the mixing operation they should have been inside the reinforced control room bunker.
The Inquisition (1)

- What is your role in the company and what does it entail?
- What are your qualifications for this role?
- Who appointed you? (Is someone else at fault because they might have appointed a person who was not qualified for the role)
- What training have you had for this role particularly with regard to your health and safety responsibilities?
- Explain to me your role in safety management in the company.
The Inquisition (2)

- How do you discharge your safety accountability?
- What information do you receive?
- What do you do with it?
- How do you know that the information is valid?
- How do you know that company procedures are being followed?
- You have told me about audit processes and their findings. How do you know that agreed actions are properly closed out?
- What else would you like me to know?!
The Aftermath and Actions

- Company prosecuted 29 March 1990
  - lack of supervision of compliance with operating instructions
  - fined £100,000 and £30,000 costs
  - other costs both personal and business

- Loss Prevention Bulletin Paper
  - To record his experience and thoughts

- IChemE Self Assessment Toolkit for SHE Assurance
  - To provide practical help to those who might otherwise be in a similar position
Some Definitions

- **Responsibility**
  - the contribution of the individual to the organisation
  - the contribution can be wholly or partly delegated.

- **Accountability**
  - the way in which a specific personal responsibility is measured;
  - accountability can not be delegated

- **Delegation**
  - the act of committing (powers, functions, etc.) to another as agent or deputy

- **Assurance**
  - a positive declaration intended to give confidence that a delegated function has been carried out
The Self Assessment Toolkit

1. Answer the relevant template questionnaire

2. Identify the specific SHE risks for which you have responsibility to generate a personal risk register

3. Define the SHE responsibilities for your role. Clarify how it fits into the organisation's responsibilities

4. Assess your competence/capability to fulfil the requirements of your self-assessment, define improvement opportunities and actions
The Self Assessment Toolkit

5. Develop your personal scheme of delegation

6. Identify how you will provide assurance for your SHE accountabilities

7. Clarify which responsibilities you have delegated

8. Identify how you will be assured about these delegated responsibilities

9. Operate in line with your personal scheme of delegation

10. Review, learn and apply

Sequential action steps
Recycle loops
The Self Assessment Toolkit

- Board
- Directors/Senior Management
- Management/Supervisors
- Employees

- Policy
- Corporate Processes
- Departmental and Local Operating Procedures
- Individual Working Practices
The Self Assessment Toolkit

- Templates Questionnaires for:
  - Non-Executive Director
  - Executive Director
  - Internal Audit Manager
  - Director for Safety, Health and Environment
  - Senior Operations Manager
  - Senior Maintenance Manager
  - Plant Manager
  - Plant Engineer
  - Maintenance Manager
  - Senior Design Manager
  - Design Engineer
  - Safety, Health and Environment Manager
References

- Self Assessment Toolkit for Safety, Health & Environment Assurance
- Both documents can be downloaded from <http://www.icheme.org/SLP-Resources>
- This presentation (and other documents) by the current author can be downloaded from <http://www.alarp.plus.com>
Thank You For Listening

Merci pour votre écoute

Vielen Dank fürs Zuhören