Procedures
Why are procedures needed?

COMAH Safety Reports

‘all activities are performed in accordance with defined standards and procedures’

‘operators adhere to well-practiced written procedures’
Why address procedures?

• Contribution to incidents
  – Most common human factors root cause – e.g. study of 130 incidents in US refineries

• Bhopal
• Piper Alpha
• Texas City
• Others?
Why are procedures needed?

- To minimise error/mistakes
- To ensure critical safety/quality steps are carried out
- To provide a basis for training
- To protect against loss of operating knowledge (e.g. demanning)
- To standardise working practice
- To meet statutory requirements
Cleansing Services Group, Gloucester

• Major fire on low tier COMAH site (waste management facility)

• Incompatible materials not separated or segregated:
  – Initiation of incident
  – Escalation of incident
• Procedures heavily relied upon as a primary control measure

However:

• Procedures did not support the decisions that staff had to make
• Inadequate management of procedures (Plan, Do, Check)
• Human factors expert witness statement
• Fine £250,000 plus costs of £400,000
Procedures: fit for purpose

• Not alternative to competence

• Types of procedures:
  – Background detail
  – Step-by-step written procedure
  – Job aid (e.g. checklist, flowchart, diagram)

• Use of ‘Black Books’
Determining level of procedural support

<table>
<thead>
<tr>
<th>Task Criticality</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task Familiarity</td>
<td>Freq</td>
<td>Infreq</td>
<td>Rare</td>
</tr>
<tr>
<td>Low Task Complexity</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>No Written Instruction required</td>
<td>Job Aid required e.g. checklist/memory aid</td>
<td>Step by Step instruction required</td>
<td></td>
</tr>
</tbody>
</table>
Is the task safety critical?  
NO

Is the task highly complex?  
YES

Is the task rarely performed?  
NO

Is the user inexperienced?  
YES

Use a step-by-step procedure

Use a job aid, such as a checklist, diagram or flowchart

Determining level of detail required
Job Aids

“Any source of information used to support the successful performance of tasks” (e.g. reminders and memory aids)

- Job aids decrease
  - the amount of decision making needed
  - the need to memorise procedures and references
  - the need to carry manuals
- Practical - designed to be consulted on the job
Plug Cover Job Aid

- **Green & Yellow or Green**
- **Blue or Black**
- 
- **Brown or Red**
- **Cord Grip**

**Fuse Specifications:**
- **13A**
- **16mm**
- **6mm**
- **22 mm**

**Cord Grip Setup:**
- Always Fitted With BS 1362 13A Fuse
- Fit BS 1362 Replacement Cartridge Fuse
I Bed Wash/Kill line work for use during bed turnaround
Procedural violations

• Whether a procedure is likely to be followed or not is as important a question as considering the technical merits of the procedure
Encouraging compliance

• Design the job so that the correct procedure is hard to avoid
• Base the procedure on how task is actually performed*
• Identify incentives to take short cuts
• Adopt a control and review process
• Write procedures:
  – with the user in mind
  – involving users.

*As long as HS&E is not compromised
Information and guidance

- HID information sheet
- HSG48 (especially pages 26-31)
- Improving maintenance guide
- Improving compliance with safety procedures - tools
HSE approach

Examine procedure(s) for safety-critical operation(s)
For example:

• Start-up & shut-down
• Commissioning
• Abnormal/emergency
• Bulk loading/unloading
• Maintenance
• Plant/process change
Procedures for safety-critical operations

• States **who** does **what**, and **when**?
• Use of present tense & active voice?
• Only use UPPER CASE for emphasis?
• Do not use more than one negative?
• One action for each procedural step?
• Give quantitative values and limits?
• Quantities and dimensions correspond to those on controls & displays?
Questions for management
Does the site have processes for:

• Determining which safety critical operations/tasks need procedures (e.g. by HAZOP/risk assessment);
• Considering how the work activities of non-company personnel (e.g. contractors) are managed;
• Approving operating procedures;
• Involving operators in writing of procedures;
• Ensuring consistency in the procedures used across site/plant for identical tasks or operations;
Questions for management 2

- Ensuring that procedures remain valid and up-to-date;
- The removal of all out-of-date procedures;
- Ensuring that staff are trained in new/updated procedures;
- Ensuring compliance with procedures;
- Reviewing relevant procedural controls following an incident or audit non-compliance
Talk to workforce

• Do they use the procedures?  - Why not?
• Were they involved in developing them?
• Are they up-to-date?
• Do they reflect reality?
• Are they of the right level of detail?
• Do they include safety critical tasks?
• Are they easy to use?
Workforce continued

• Do operators use ‘black books’?  - Why?
• Ask them to explain how to do a task
  – Do they always do it that way?
  – How do they remember how to do it?
• Do they identify all necessary warnings?
• What do they really think of procedures?