

CORE TOPICS

Core topic 4: Reliability and usability of procedures

Introduction

Good written procedures are vital in maintaining consistency and in ensuring that everyone has the same basic level of information. They also play a key role in ensuring that good quality training is delivered. Poor procedures, however, can be a reason for people not following the required actions.

Reliable and usable procedures are the key to avoiding 'mistake' type errors (rule based and knowledge based ones – see chapter on Planning and Undertaking the Inspection).

Assuring MAH safety through procedures requires such procedures to be useable and used. Suitable task or job aids (flow diagrams, checklists, diagnostic tools etc) are needed to help assure critical steps or sequences within tasks. These should have appropriate warnings and critical information relating to control of MAHs, and should keep to one simple subtask or action per step.

The key issue when preparing procedures is to consider who the documents are intended for and what they are expecting them to be used for i.e. the procedures need to be proportional for their intended purpose. Procedures can fulfil various functions, such as reference manuals, training documents, on-the-job aids, etc, and this function will determine the type of procedure that is needed e.g. for use on-the-job flow sheets and checklists will be more appropriate.

Developing these requires operator participation from the start (or in a review) if ownership is to be built in and violations/non-compliance to be avoided. Typical critical procedures include start-up and shutdown, tanker deliveries and tank filling, emergency response, maintenance of safety critical plant and equipment. Poor safety culture is also a major cause of procedural violations.

The more rarely a procedure is used, e.g. those for plant upsets, emergency response, etc, the more detailed the procedure will need to be.

As well as being technically accurate, procedures need to be consistent (within the organisation) well-written, usable and up to date.

The style (format/layout) of procedures can be critical in the clear and accurate assimilation of the information. HSG48 contains good guidance on this, with a typical procedure having the following elements:

- Purpose of the procedure;
- Precautions which must be observed to avoid potential hazards;
- Special tools or equipment needed;
- Initial conditions which must be satisfied before starting;
- References to other relevant documents, e.g. data sheets or manuals; and

- Procedural steps to perform the task safely and efficiently.

HSG48 also includes guidance on the format/layout of procedures with the following all being elements to consider:

- Divide longer procedures into shorter chunks (helps users to go back to a particular step if they are interrupted or if the task takes some time to carry out).
- AVOID USING ALL CAPITAL LETTERS FOR THE TEXT (this is slower and more difficult to read). Decide how features such as capitals, bold, italics, and underlining will be used. Overuse of these features is very distracting for users.
- Avoid using very small fonts (e.g. 8 point or smaller, as they are very difficult to read).
- Make good use of open space in the printed text (if the page appears too cluttered, users will be discouraged from reading it).
- Use a consistent **format** for all procedures (helps users find their way around the text).

Specific documents

In addition to the general documents that should be requested prior to the visit (see chapter 'Aim of the Guidance') it is recommended that the following documents, which are specific to this topic, should also be requested:

- The site standard or 'procedure for writing/designing procedures'.
- Copies of example operating procedures (preferably ones actually used to carry out the task) for selected safety critical tasks eg tanker unloading, start-up etc.

Enforcement and advice

Enforcement for a review should be considered where key procedures are demonstrably poor or not followed, particularly after an incident or near miss.

Developing suitable procedures has been part of several enforcement interventions e.g. as part of human factors' risk assessment for batch reaction processes.

The HF Team have produced additional guidance on the subject which has been published as a Chemical Information Sheet.

Guidance

- **Reducing error and influencing behaviour**, HSG48
- **Improving compliance with safety procedures: reducing industrial violations** HSE Books 1995

- **Evaluation report on OTO 1999/092 Human factors assessment of safety critical tasks** Research Report 033

Question set: Reliability and usability of procedures

	Question	Site response	Inspectors view	Improvements needed
1	<p>Is there a formal process in place to determine which safety critical operations/tasks need procedures (e.g. HAZOPs/risk assessment)?</p> <ul style="list-style-type: none"> Do these arrangements consider the potential for human error? 			
2	<p>Do the procedures in existence cover the range of areas/operations expected, such as:</p> <ul style="list-style-type: none"> Maintenance operations? Plant start-up and shutdown? Plant operation? Training and competency arrangements? 			
3	<p>Is there a process in place to consider how the work activities of non-company personnel are managed?</p>			
4	<p>Is there an approvals process for operating procedures?</p> <ul style="list-style-type: none"> Who is responsible for managing this? 			
5	<p>Is the format, type of procedure and the user considered when writing procedures?</p>			
6	<p>Are the types (checklists, instructions, flow sheets etc) of procedure appropriate for:</p> <ul style="list-style-type: none"> Routine operations? Safety critical operations? Emergency and upset conditions? 			
7	<p>Is there a consistency in the procedures used across site/plant where the task or operation is identical?</p>			
8	<p>Are Operators involved in the identification and writing of procedures?</p>			
9	<p>Do Operators have ready access to procedures in the normal working environment?</p>			

	Question	Site response	Inspectors view	Improvements needed
	<ul style="list-style-type: none"> • How often do they refer to them? • Why do they refer to them? 			
10	<p>Is there a process in place to ensure that procedures remain valid and are up-to-date?</p> <ul style="list-style-type: none"> • Does this consider both hardcopies and electronically held documents? 			
11	<p>Is there a formal mechanism in place for removal of all out-of-date procedures?</p> <ul style="list-style-type: none"> • Does this occur in practise (or are older versions still found in control rooms, maintenance offices, etc)? 			
12	<p>Is there a formal mechanism in place to ensure that staff are trained in new/updated procedures?</p>			
13	<p>Is there an ongoing monitoring system to ensure compliance to procedures?</p> <ul style="list-style-type: none"> • Do the results of this monitoring feed back into the review/revision/validation process? 			
14	<p>Is there a process to ensure that relevant procedural controls are reviewed following an incident or audit non-compliance?</p>			