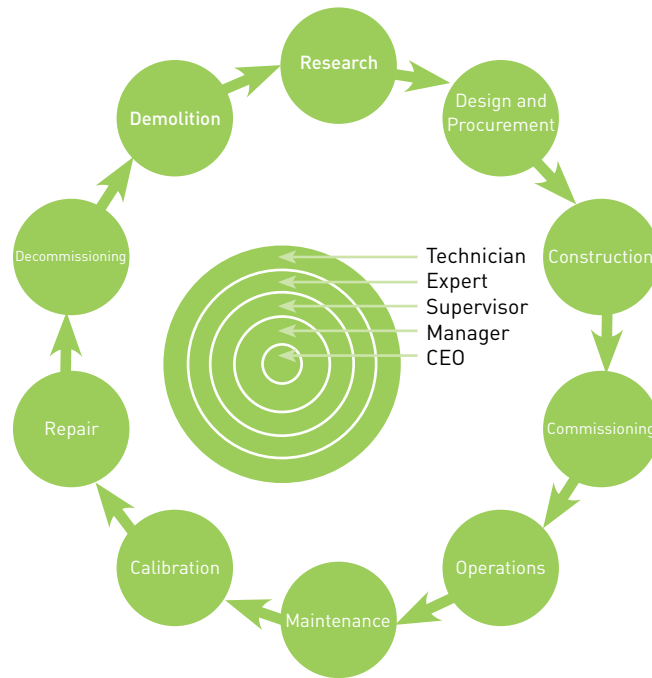


Making the Case for Process Safety Competence

Why Process Safety Competence?

Process Safety encompasses those activities within a major hazard environment whose aim is to keep substances and energy within the vessel or pipe. In other words good process safety avoids loss of containment. The consequences of getting process safety wrong include fires, explosions and toxic releases which in some cases result in harm to people, damage to the environment and business interruption. For a business the benefits of getting process safety right include retaining the license to operate and upholding the principles of Responsible Care® in the eyes of the workforce, local community and wider society.

Process safety is a complex issue which requires competence in many different areas and levels within a company:



Many incidents or accidents happen because necessary competence is not available at the right time in the right place. Recent examples include Texas City, Buncefield and Deepwater Horizon. Process Safety Competence often also has a role in ensuring that the correct actions are taken should an incident occur and may be critical to reducing the impact of the event and preventing escalation.

Why a Management System?

The European Process Safety Centre (EPSC) has prepared a guidance document on how to set up a Process Safety Competence Management System (PSC-MS). To keep the guidance short it focuses on the requirements at a site level but the system described could easily be extended to other functions within a company if required. The guidance is structured into 9 self contained elements where each element can be used as a standalone tool for gap analysis or to address the gaps. This modular approach allows the alignment of a PSC-MS with existing management systems or even inclusion as part of an Integrated Safety Management System. Examples of how to develop and maintain a PSC-MS, how to define and document key elements and auditing aids are included in appendices.

What is in this Management System?

1. High Level Policy Statement

Improving and maintaining Process Safety Competence (PSC) and its management system needs clear and visible support by top management.

2. Facility minimum PSC requirements

At any given time there will be a selection of competencies available for a facility. The purpose of defining the facility minimum PSC requirements is to state which competencies must be present at a specific time or for a specific operation in order that the safety of the facility is not compromised. For example, if a facility handles reactive chemicals it may be essential that someone with the knowledge of how to handle a runaway reaction is available at all times. The minimum requirements must include requirements for specialist support, which should be independent from operational and financial pressure.

3. Selection and recruitment of personnel

The objective is to have a process that will attract the correct candidates for jobs within the company and allow the most appropriate candidates to be selected whether from within or outside the company. The selection and retention of the right people is of fundamental importance to maintaining high levels of competence.

4. Individual competence needs analysis and managing competence gaps

Based on the basic PSC requirements for the company/site/facility the competence requirements should be fine tuned for each job/role (from facility/plant operator through technical staff and supervision). The people who (shall) perform their job are assessed against these competence needs. The definition of the individual competence needs is the core of any PSC-MS. It forms the basis of the training and assessment programme for the person as well as defining the required level of supervision. Where the needs analysis highlights a significant gap this must be addressed by the appropriate management.

5. Maintaining competence, training and development

Given the great differences in PSC requirements for the different roles, specific training for each role is usually necessary. Refresher training must be provided at an appropriate frequency to maintain the required PSC level over time. Training and procedures should cover when people must request assistance. For example, no operator is likely to have all the knowledge required to deal with a reactive chemical situation so he or she must know to call for help and that help must be available.

6. Competence assessment and reassessment

Where a role requires PSC, the ability of a person to perform this part of their job must be reassessed regularly and systematically. Records should be maintained and trends in competence should be monitored to improve the effectiveness of training and the whole management system.

7. Special competence requirements for emergency situations

Abnormal situations are a major challenge with regard to PSC. People need special skills such as situational awareness and the ability to cope with stress to deal with such events but typically get very few opportunities to develop these skills in real situations. The availability of both general and specialised PSC not only enables adequate reactions in emergencies but also reduces stress. Realistic drills and simulations can be valuable in developing the competence required.

8. Ownership and commitment

The expectations for each individual who can contribute to process safety must be clearly communicated. Measures should be in place to encourage ownership and commitment since these are essential to achieving the highest levels of Process Safety performance. Whilst there is no direct measurement for the ownership and commitment felt by an individual, this can be often estimated by the use of culture or attitude assessments.

9. Continuous improvement

The long term effectiveness of the PSC-MS requires a periodic Management System Review. PSC capabilities may deteriorate, Process Safety knowledge and requirements may change and the effectiveness of the PSC-MS itself has to be reviewed regularly. General decay of PSC may also signal problems with process safety culture. Many of the processes above, such as competence assessments and audits can be used to provide feedback for the Management System review.

How can I implement such a system?

The appendices of the EPSC guidance provide an example for the design and implementation of a PSC-MS largely based on existing systems within EPSC member companies. Other appendices include:

- How to define and document key roles and PSC requirements (including examples of core competencies/competence areas, of a Role/Competence Matrix and of a Competence/Role/Competence Level Table and Diagram)
- Example of a Checklist for Audits or Self-Assessment
- Examples of High Level Policy Statements
- Example of a PSC training matrix

Where can I learn more?

For more information about the EPSC Process Safety Competence Guidance contact Lee Allford (lallford-epsc@icheme.org).

How can I contribute?

EPSC elected to share this Guidance with the whole Process Safety community pursuing its aim to improve Process Safety. The Guidance is intended to be a “living document” and it is planned to update it in the future. We would be grateful to receive any feedback or potential contributions to the appendices and will employ these to make the next version of this guidance more valuable to future users.



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