

## Position Paper

# Process Safety Culture

### Introduction

The process industries increasingly recognise the importance of the cultural aspects of process safety management. This is due in part to the findings from investigations into major disasters in process industries (e.g. Texas City) and other industries such as nuclear power (e.g. Chernobyl) and space travel (Challenger & Columbia). All these investigations concluded that systems broke down catastrophically, despite the use of complex engineering and technical safeguards. These disasters were not primarily caused by engineering failures, but by the action or inaction of the people running the system.

Safety culture consists of values, attitudes, perceptions, competencies and behaviour of the people that make up the organisation. In an organisation with a positive safety culture there are high levels of trust, safety management systems are effective and people agree that safety is important. This definition implies that a poor safety culture would be one where people do not trust each other, and do not share the perception that safety is important and that preventative and control measures are necessary.

Safety culture transcends the organisational members that share the culture, is passed on to new members, and endures. Safety culture relies on people, especially those in the higher ranks of an organisation. Eventually, safety culture becomes an integral part of the organisation. New members of the organisation informally 'learn' the safety culture, through observation and social feedback. Therefore sustainable safety culture will finally be independent of people who are currently part of the organisation. The culture will exist after all these people have left.

It is worth noting that safety cultures do not exist in isolation to other forms and that safety cultures can inform and be informed by prevailing corporate cultures and indeed those that operate externally to a business such as national cultures. Similarly process safety culture is itself an integral part of the safety culture in the company. It would be prudent for major risk businesses to take a periodic check of their safety culture in order to understand whether safety programmes are working reliably to a high level and the workforce is truly engaged.

Safety culture cannot be directly measured in the traditional sense but it is possible to infer the health of a safety culture from first-hand experience of a working environment. This is an important aspect to safety management in that managers need to make regular tours and checks of the workplaces that they have responsibility for. Beyond first hand exposure a more objective indicator of safety culture can be found either by surveys of the workforce or structured interviews. These indicators can initially be used as a baseline to track movement over time.

**Definition**

There are many definitions of safety culture. One less formal definition is:

*“The way we do things around here.”<sup>1</sup>*

This definition highlights the importance of the working level independent of all policies and written documents. One has to come down to this level and to watch the way people perform their job.

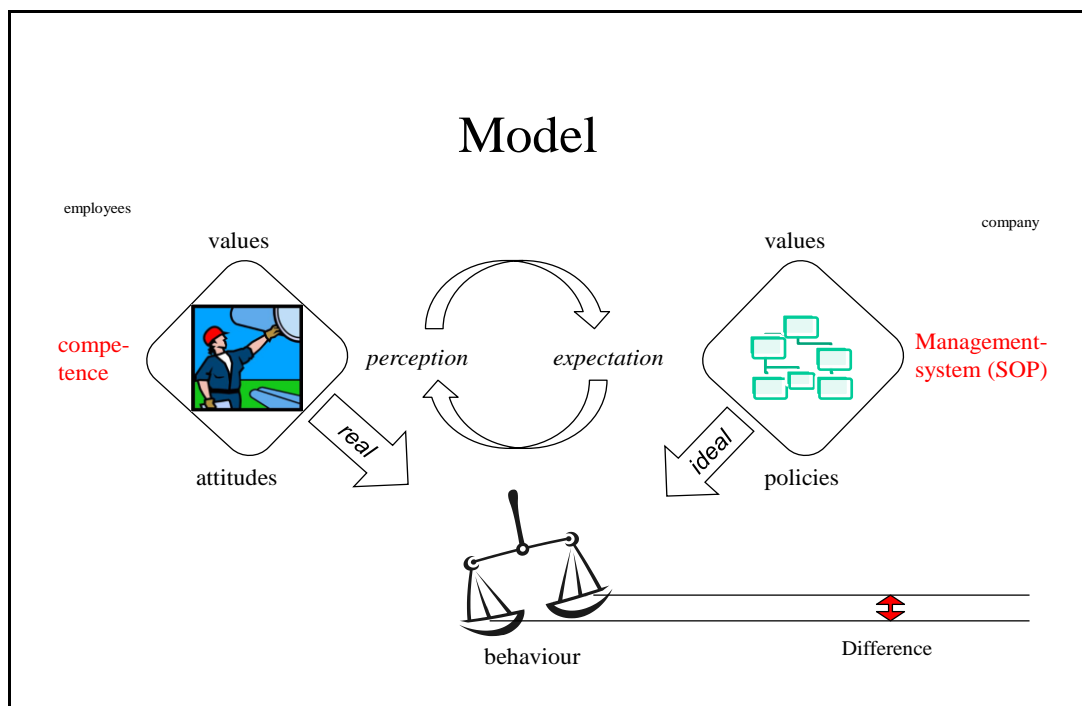
One more formal view of safety culture subsequently used is below:

*The safety culture of an organisation is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisation’s health and safety management.<sup>2</sup>*

**Culture, the business and its employees**

The five parameters mentioned in the definition (values, attitudes, perception, competencies, behaviour) are relevant for an individual employee as well as for the whole organisation respectively company. The fundamental question is how and to what extent a company can influence the individual employee to behave as expected (“internal compliance”).

The following model illustrates how safety behaviour may not always be what we expect. Individuals or teams may or may not comply with safety procedures and this depends on several factors such as peer pressure, ownership of safety rules and the perceived consequences to undesirable behaviour. A gap can emerge between the way a workforce behaves and the way it is expected to behave by managers and the business.



<sup>1</sup>Confederation of British Industry (CBI), 1990

<sup>2</sup>The HSE’s Advisory Committee on the Safety of Nuclear Installations (ACSNI: HSC, 1993)

The following table demonstrates that for the five parameters of safety culture gaps may exist between the expectations of both the company and that of the employees. For instance employees usually have quite different values depending on their social and educational background, but the company strives for uniform values regarding safety culture. These differences are more or less transparent and can be more or less influenced by the company.

No	Parameter	Employee	Transparency	Company's Influence	Company
1	<b>Value</b>	Diversity Knowledge of company values	No	Low High	Uniformity Consistent set of values for all employees
2	<b>Attitude</b>	Diversity Knowledge of company's policies	No	Low High	Uniformity Policies defined for all employees
3	<b>Perception</b>	Diversity depending on values and attitudes but already streamlined by behavior	(Yes)	Medium	"Gaussian distribution" Influenced by supervisors as part of their job description Leadership Support by training
4	<b>Competencies</b>	Individual (newcomer) to more or less specific knowledge depending on job description	Yes	High	Management task: "the right competence at the right place" Leadership Support by training and instructions
5	<b>Behaviour</b>	Restricted by standards (SOP) as part of a safety management system	Yes	High	"Gaussian distribution" Management task: identification and wording of the standards Information, instruction of employees about new or changed standards Leadership through the whole organization Audits, follow-up

The table also demonstrates that the safety contract between employee and company is one under constant flux and tension. A company with a positive safety culture is able to recruit a new worker and that worker will after time adopt safe working behaviour as second nature. The converse is true of a company with a negative safety culture.

### The way forward

Companies need a

- set of values and policies
- and
- Safety Management System (SMS) on national and local level prescribing the workflow of safety relevant processes on all levels of the company

to make visible the expectations to its employees about their "behaviour".

In detail the companies should fulfill the following

**Requirements:**

- Companies need leaders on all level of the organisation to ensure that the behavior of the employees is in line with expectation of the company.
- Process Safety should be part of the values, policies and SMS.
- Process Safety culture is a function of the complete set of values, policies and SMS and depends on
  - quality of this set
  - commitment of the manager to this set
  - knowledge of the employees about this set
  - competence of the employees to behave according to this set
  - ability of the company to control the performance regarding this set
  - willingness of all employees to improve this set
  - openness to all relevant stakeholders

regarding the issue Process Safety

Taking this into account, EPSC recommends the following actions towards a positive and sustainable

**Process Safety Culture:**

- Management is committed to act and behave according to the values, policies and SMS.
- Responsibility for process safety has been assigned to a board member.
- Process safety is part of the values and policies of your company.
- All relevant processes determining the process safety performance are mentioned on a corporate level.
- Performance indicators have been introduced globally to measure the state of process safety.
- System to support the process of continuous improvement of values, policies and SMS.
- Auditing process safety relevant information is part of the overall audit process.
- Safety Management System on a national and local level is aligned to the policies and SMS on corporate level.
- Employees have knowledge about the values, policies and SMS.
- Employees are qualified to behave according to the values, policies and SMS.
- Relevant stakeholders are informed regularly about process safety related issues.

**References**

PRISM FG1 Safety Culture Application Guide – Final Version 1.1 – 8 August 2003