

Contents lists available at [ScienceDirect](http://www.sciencedirect.com)

Process Safety and Environmental Protection

journal homepage: [www.elsevier.com/locate/psep](http://www.elsevier.com/locate/psep)

IChemE

## Learning organisations for major hazards and the role of the regulator

Ju Lynne Saw<sup>a</sup>, Jill Wilday<sup>a,\*</sup>, Howard Harte<sup>b</sup>

<sup>a</sup> Health and Safety Laboratory, Buxton, UK

<sup>b</sup> Health and Safety Executive, Bootle, UK

### A B S T R A C T

A learning organisation is one that not only values and encourages learning from its own experiences, but also looks beyond itself for lessons, and avoids complacency. To be a learning organisation is a key part of the safety culture of any organisation involved with major hazard processes. It facilitates learning which can reduce the risk from major accident hazards. The paper provides a learning organisation toolkit which synthesises, from various literature sources, an understanding of what a learning organisation is and how to begin to develop one within an organisation. The paper illustrates how the regulator can be a learning organisation for major hazards, using the example of HSE's offshore fire, explosion and risk assessment team.

Crown Copyright © 2010 Published by Elsevier B.V. on behalf of The Institution of Chemical Engineers. All rights reserved.

**Keywords:** Learning organisation; Major hazards; Offshore; Safety culture

### 1. Introduction

To prevent major incidents, the UK Health and Safety Executive (HSE) recommends that major hazard organisations should focus on process safety leadership built around seven key elements including being a learning organisation that not only values and encourages learning from its own experiences, but also looks beyond itself for lessons, and avoids complacency (Podger, 2008). Being a learning organisation is also an aspect included by Fleming (2000) as required in an organisation having a mature safety culture. HSE itself aims to be a learning organisation, learning from others and from experience, sharing ideas and information, and open to and encouraging innovation (HSE, 2005b).

The concept of learning organisations was developed as a tool for business management, concerned with productivity and efficiency. Senge et al. (1994) suggested that the organisations that truly excel are those that discover how to tap into people's commitment and capacity to learn at all levels of the organisation. It has been applied in a number of organisations including some of which operate major hazards

processes, such as Shell (Boyle, 2002) and BP (Collison and Parcell, 2004). British Energy (Beswick and Kettleborough, 2007) in the nuclear sector has applied learning organisation principles to the improvement of safety culture. No other examples have been found in the literature of the application of learning organisation principles specifically for major hazards safety improvement.

This paper will review what is meant by a learning organisation and will show practical examples of how the regulator can act as one. It will do this by using as an example the Fire, Explosion and Risk Assessment team in HSE's Offshore Division (OD).

### 2. A learning organisation toolkit

A toolkit was developed by the present authors, originally as an information source for HSE senior managers who were considering how to implement a learning organisation approach to major hazards. It synthesises, from various literature sources, an understanding of what a learning organisation is and how to begin to develop one within an organisation. The toolkit is provided in Appendix A.

\* Corresponding author. Tel.: +44 01298 218124; fax: +44 01298 218160.

E-mail address: [jill.wilday@hsl.gov.uk](mailto:jill.wilday@hsl.gov.uk) (J. Wilday).

Received 14 May 2009; Received in revised form 24 February 2010; Accepted 16 March 2010

### 3. The regulator as a learning organisation for major hazards

#### 3.1. Offshore fire, explosion and risk assessment

The Fire, Explosion and Risk Assessment (FERA) team in HSE's Offshore Division is one of a number of specialist teams. It has responsibility for the areas of fire and explosion, as regulated under the Prevention of Fire & Explosion, and Emergency Response (PFEER) Regulations (HSE, 1995) and for risk assessment, particularly the fire and explosion risk assessment required by the Offshore Safety Case Regulations (HSE, 2005a). The team is therefore concerned with regulation of the primary offshore major accident hazards. Team members, in common with members of other OD specialist teams, carry out intervention activities including inspection, safety case assessment and incident investigation. Each member of the FERA team covers a number of offshore installations and duty holders as part of HSE teams for each installation, comprising a number of specialists of different disciplines and coordinated by an inspection management team (IMT). An IMT inspector is responsible for dealing with a number of offshore installations and focuses on their safety management system in general, as well as managing the efforts of a number of specialist inspectors.

The strategy and activities of this team are considered below in terms of its contribution to the HSE strategic aim to be a learning organisation in major hazards: learning from others and from experience, sharing ideas and information, and open to and encouraging innovation (HSE, 2005). These aspects are illustrated in Fig. 1.

Fig. 1 shows that a learning organisation will have information flows internally (sharing and learning) which lead to innovation. It will also have information flows from (learning from) and to (sharing with) its external environment. There are many entities at different levels inside and outside an organisation which all need to exchange information and learn from each other. Fig. 1 illustrates just three of these: the FERA team itself, HSE OD of which it forms one part (there are also interactions with many different teams within HSE OD), and the offshore industry which HSE OD regulates.

#### 3.2. Learning from others and from experience

The regulator is in a unique position to learn about and compare practices between different duty holders and instal-

lations. This includes both good and bad practice as gleaned from inspections, incident investigations and safety case assessments. The team carries out both formal and informal review of this information to identify common themes and knowledge gaps. Formal review of recent learning is carried out at team meetings. However much is done informally. For example, whenever team members meet with another team member or with members of other specialist teams, IMTs, industry specialists etc and chat about current issues, or take the opportunity to check whether something seen on a recent inspection is a wider issue. Information about common themes and knowledge gaps is then used to initiate research as needed, to identify the need for guidance notes, and to inform priorities for future inspection and assessment.

The team contributed to the recent Key Programme 3 (KP3) inspection programme on asset integrity (HSE, 2008), which involved inspections of a large number of installations and scoring of a number of aspects in a consistent way. This was an example of another, more formal, mechanism of learning from inspections, including: witnessed testing of certain safety critical elements such as temporary refuge HVAC dampers, deluge systems and fire pumps. This provided a systematic evidence base identifying common themes that require addressing. One conclusion from the KP3 programme was the need to address ageing of offshore installations, which confirmed earlier learning by the team using less formal methods.

In terms of the science and technology underpinning the offshore fire and explosion discipline, the team undertook a knowledge management initiative (HSE, 2003) with the support of colleagues from the Health and Safety Laboratory (HSL). This entailed:

- Breaking down the discipline into topic areas and describing the scope of each;
- Describing the significance of the topic area with regard to the risk of major accidents on offshore installations;
- Summarising current knowledge (i.e. reference to completed and on-going research, standards, codes of practice, guidance etc.);
- Summarising existing modelling capabilities (if appropriate to the topic area);
- Identifying areas of uncertainty;
- Summarising current industry practice (e.g. reference to approaches taken in safety cases, extent of implementation of existing codes and guidance, awareness of issues); and
- Summarising areas to potentially be taken forward as part of the team's strategy development.

This document essentially harvested the learning of team members from their activities of inspection, investigation, assessment, standards and guidance development, and participation in research including joint industry projects (JIPs). It included learning from HSL colleagues, both in terms of their review of available literature and, as importantly, their learning from working in different major hazards industry sectors (onshore, nuclear etc.). The document is currently being updated using a similar process. The scope for the update has been widened to also include risk assessment.

The team have formed a relationship with colleagues at HSL involving partnership working to solve problems and produce guidance. Colleagues in HSL have an understand-

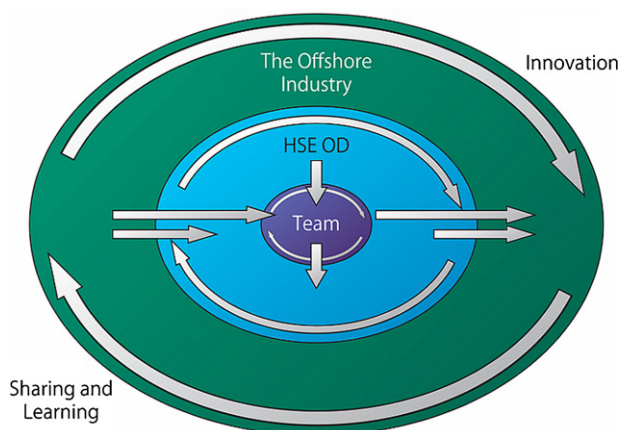


Fig. 1 – The FERA team as a learning organisation.

Download English Version:

<https://daneshyari.com/en/article/588666>

Download Persian Version:

<https://daneshyari.com/article/588666>

[Daneshyari.com](https://daneshyari.com)