

## **Managing Risk:**

# **The hazards that can destroy your business**

A guide to leadership in process safety



## Foreword

Understanding and managing risk is critical to any business.

Traditionally the focus is on the management of financial aspects, but there are other important risks that a company faces. Some of these not only have the potential to kill or injure people and damage the environment, but also to destroy facilities, company reputation and potentially the business itself. These risks need to be identified, evaluated, controlled and mitigated.

Good leadership is an essential component in managing hazards in businesses that present the potential for explosion, fire, environmental disaster or the release of toxic material, which can lead to significant harm to people and the environment. Without leadership, an organisation will not devote the right amount of resource, effort, focus and priority to understanding and controlling these risks.

This guide describes “*what good looks like*” and outlines a set of leadership principles and practices that can go a long way in keeping you and your business safe. These principles are recognised by the COMAH Competent Authority<sup>1</sup> as a benchmark when inspecting businesses with major accident hazard potential – notably those regulated under COMAH<sup>2</sup>. It is not mandatory to follow the principles, and when asked, you may show that you have used an equivalent set of measures.

The guide is equally important for those companies not regulated under COMAH, but still with the potential for serious incidents that could harm people or the environment, as good leadership remains good practice and adds value whatever your scale of risk.

The principles in this guide have been forged out of painful learning from major incidents in the oil and chemical sectors. They have been tested over the last ten years and have shown their worth and value. Backed by these industry sectors and the COMAH Competent Authority, they are a prime example of collaboration to “Help Great Britain to Work Well”<sup>3</sup>. They have been honed by experience and now is the right time to share them more widely.

### **A final word on leadership in the management of major hazards.**

We would not leave the management of financial risk solely to our accountants. Similarly, we should not leave the management of major hazard risks solely to our engineers. Boards of directors as well as management teams have a particular responsibility to be as curious about major hazard risks as any other threat to their business. But it is also a discussion in which we are all qualified to participate and where we can all ask meaningful questions – in fact we are obliged to, because it could make all the difference. Leaders help create the conditions for this to happen and this guide shows how that can be done.

I wish you success in managing your risks,

Ken Rivers, Chair of the COMAH Strategic Forum

---

<sup>1</sup> The COMAH Competent Authority in GB is the Health and Safety Executive (HSE) or the Office of Nuclear Regulation (ONR) for nuclear establishments, working jointly with the appropriate environment agency: in England the CA is HSE or ONR and the Environment Agency; in Scotland it is HSE or ONR and the Scottish Environment Protection Agency; and in Wales it is HSE or ONR and the Natural Resources Body for Wales.

<sup>2</sup> In GB, the Control of Major Accident Hazards (COMAH) Regulations 2015 implement the European Union Seveso III directive regarding how sites with major accident hazard potential should be managed. For more information on COMAH see: [www.hse.gov.uk/COMAH/guidance/understanding-COMAH-new-entrants.pdf](http://www.hse.gov.uk/COMAH/guidance/understanding-COMAH-new-entrants.pdf)

<sup>3</sup> HSE ‘Help GB work well strategy’, for more information see: [www.hse.gov.uk/strategy](http://www.hse.gov.uk/strategy)

**COMAH Strategic Forum**

*The COMAH Strategic Forum is a high level joint chemical industry and regulator forum working to improve major accident hazard management and raise standards across industry.*



**Contents**

FOREWORD ..... 1  
CONTENTS ..... 3  
WHAT IS PROCESS SAFETY AND WHY DEVELOP A SET OF PRINCIPLES? ..... 4  
WHAT DO THE PRINCIPLES SAY? ..... 6  
WHAT DO THE PRINCIPLES MEAN TO MY ORGANISATION? ..... 7  
WHY SHOULD I ADOPT THE PRINCIPLES? ..... 8  
HOW DO I PUT THE PRINCIPLES INTO PRACTICE? ..... 10  
CONCLUSION ..... 11

## What is Process Safety and why develop a set of principles?

Process safety is a term commonly used for managing the risks that, if not effectively managed, have the potential to destroy your business, kill & injure people and cause significant harm to the environment.

In practice, process safety concerns the design, maintenance and operation of plant and equipment to prevent unintentional release of chemicals, together with the management, mitigation and emergency procedures used to reduce the risk from a release. It is a useful abbreviation and we have used it in this guide for convenience.

People regularly confuse process safety with occupational health and safety and the misunderstanding can be catastrophic. Two distinctly different approaches are required to manage them effectively and success in occupational health and safety does not mean success in process safety and vice-versa.

Occupational safety ensures, for example, work at height is carried out safely, that the area people are working in is free from hazards, such as moving vehicles, and slippery floors, unguarded machinery or dangerous electrical installations and that safe, planned systems of work are followed. Occupational Health refers to the effective management of significant health risks, for example respiratory sensitizers and/or carcinogens, and the reduction of serious ill-health effects from the chemicals and processes that you use.

Process safety refers to the tools that are used to manage the integrity of hazardous processes and storage. It uses a mixture of engineering and management skills, and wider systems thinking aimed at preventing events such as explosions, fires and toxic releases. It focuses on three key aspects:

- Plant (hardware)
- Process (systems)
- People

Process safety is about managing risks effectively so that people, the environment and assets are kept safe. More complex operations, greater ranges of hazardous substances and larger inventories of those substances can all lead to increased risk. However, the discipline of process safety is valuable no matter what the scale or complexity of the business.

It is vital to understand that although important, an exclusive focus on Occupational Health and Safety performance – for example reducing Lost Time Accident and personal injury rates, improving occupational health, reducing slips trips and falls - will not deliver success in managing process safety. Many high-profile incidents have been characterised by an over-emphasis on improving occupational safety at the expense of the less frequent but potentially more serious process safety incidents.

Following a number of these incidents, several industry sectors worked through their trade associations and in conjunction with the COMAH Competent Authority and Trades Unions to develop a set of Principles of Process Safety Leadership to help ensure that they work together to improve process safety performance. For those trade associations and companies involved improvements have been seen in the relationship with safety and environmental regulators, consistency in site based regulation (due to joint guidance development) and in identifying and tackling emerging issues.

<b>COMAH Strategic Forum</b>	<i>The COMAH Strategic Forum is a high level joint chemical industry and regulator forum working to improve major accident hazard management and raise standards across industry.</i>
------------------------------	---

Common benefits can be gained from a collaborative and joint approach and this should be considered in conjunction with your company's own policies with regard to ensuring the value of visible and effective leadership, worker engagement, monitoring and sharing best practice. Such initiatives are relevant to both occupational and process safety.

Adopting the following principles can help your business improve its performance and you will be giving additional protection to your people, to the environment, and to your business. In addition, the regulator takes the performance of a business managing its risks into account when determining where and to what extent it plans its inspections.

## What do the principles say?

The *Principles of Process Safety Leadership* were developed following the Buncefield explosions in 2005, and are designed to help companies understand how they can promote process safety within their own organisations and work collaboratively to improve standards. More than 10 years on from Buncefield the Principles are just as valid as they were then, and a sound basis for improving process safety leadership and management.

The principles are:

- Clear and positive process safety leadership is at the core of managing a major hazard business and is vital to ensure that risks are effectively managed;
- Process safety leadership requires board level involvement and competence. For companies with boards located outside the UK then the responsibility to show this leadership rests with the most senior UK managers;
- Good process safety management does not happen by chance and requires constant active engagement;
- Board level visibility and promotion of process safety leadership is essential to set a positive safety culture throughout the organisation;
- Engagement of the workforce is needed in the promotion and achievement of good process safety management;
- Monitoring process safety performance based on both leading and lagging indicators is central to ensuring business risks are being effectively managed;
- Publication of process safety performance information provides important public assurance about the management of risks by an organisation; and
- Sharing best practice across industry sectors, and learning and implementing lessons from relevant incidents in other organisations, are important to maintain the currency of corporate knowledge and competence.

Further information can be found here: [www.hse.gov.uk/COMAH/buncefield/pslqprinciples.pdf](http://www.hse.gov.uk/COMAH/buncefield/pslqprinciples.pdf)

---

*“The Principles of Process Safety Leadership were a strong influence when we as a company developed our own ‘Group Process Safety Framework’. The framework itself consists of 12 individual risk control standards, the first of these being focussed on leadership.*

*The risk control standards set out clearly both the requirements and expectations placed on our leadership in regard to the management of process safety and is visible at all levels of the business, which has helped drive improvements in both safety & operational performance, and a visible leadership, as well as financial targets”*

*National Grid – Grain LNG Terminal*

---

### **What do the principles mean to my organisation?**

Any business that has the potential to cause harm to people or to the environment should have a clear understanding of these risks. The principles aim to help businesses understand and manage these risks. This can be done by ensuring that:

- everyone in the business understands what could go wrong and the role that they have in preventing this;
- managers, from the most senior to the front line:
  - are actively involved in process safety and are held to account for their performance
  - display by both actions and words the importance of process safety relative to other priorities such as schedule and cost;
  - actively encourage and promote discussion with employees, safety representatives and contractors so that the risks can be better understood and improvements made;
- process safety performance within the business is monitored and any action taken as appropriate – not only when accidents happen but also failures that could lead to an accident; and
- the business looks externally for any lessons that could be learnt or changes that could be made to minimise the risks of an accident.

Adoption of the principles does not mean a fundamental review of what you do and how you do it, nor does it mean significant capital expenditure for people or equipment. The principles aim to influence the thinking within the business, making sure that process safety is understood at all levels, appropriate networks are formed and where weaknesses are identified action is taken.

---

*“Process safety leadership prevents incidents through being visible, purposeful and setting clear direction for their organisation and then acting in accordance with it”*

*Stephen Clarke, Major Accident Hazards Advisor, BP*

---



## Why should I adopt the principles?

The principles were created to help business better manage their process safety risks. Adoption does require time and commitment however the benefits can be significant – by engaging with your workforce and with other businesses you have the opportunity to reduce the potential for a major hazard event in your company that could cause harm to people, the environment, your assets, your business, and disruption to your customers.

You will be able to demonstrate to your shareholders, your employees, your stakeholders and insurers that you are effectively managing the risk of major hazards through adoption of best practice. You will be better placed to show your compliance with regulatory requirements. It is also likely that you will have fewer minor disruptions to your business and reduce rework and waste.

Where there is a commitment to fully engage with your business sector you will have the opportunity to:

- gain access to the process safety knowledge and experience of other similar companies:
  - ✓ Several trade associations (including all those involved in the COMAH Strategic Forum<sup>4</sup>) have dedicated committees and strategies in place to share process safety knowledge and good practice.
  - ✓ Access to the learning from major hazard events in other companies enabling you to take proactive action to avoid them happening to you
- influence how your industry sector is regulated:
  - ✓ Industry works together with the Competent Authority through the COMAH Strategic Forum (CSF) to agree strategy and direction for maintaining and improving major hazard management and leadership.
- Improve their understanding of how the adoption and demonstration that you work in accordance with the principles can potentially influence the level of regulatory intervention:
  - ✓ Following the Better Regulation Review, the COMAH Competent Authority considers performance as part of the intervention planning process, for further information see: [www.hse.gov.uk/COMAH/guidance/performance-recognition-framework.pdf](http://www.hse.gov.uk/COMAH/guidance/performance-recognition-framework.pdf)
- Influence joint regulator/industry guidance
  - ✓ Joint Industry and COMAH Competent Authority guidance is regularly commissioned and developed through the Chemical and Downstream Oil Industries Forum (CDOIF) and individual trade associations, this ensures that emerging issues or areas where further information is required can be tackled quickly and consistently. For further information: <http://webcommunities.hse.gov.uk/connect.ti/COMAHSF/view?objectId=54323&exp=e1>
- influence process safety training development
  - ✓ industry has worked collectively with the COMAH Competent Authority and COGENT Skills to develop a range of process safety courses. For further information: [www.cogentskills.com/courses/process-safety-management-courses/](http://www.cogentskills.com/courses/process-safety-management-courses/)

<sup>4</sup> The COMAH Strategic Forum is a high level joint chemical industry and regulator forum working to improve major accident hazard management and raise standards across industry.

## COMAH Strategic Forum

*The COMAH Strategic Forum is a high level joint chemical industry and regulator forum working to improve major accident hazard management and raise standards across industry.*

For the COMAH sector, these networks, forums and working groups are already well established and actively working with industry to help us all work more safely and efficiently.

For those businesses not regulated under COMAH but with process safety risks, the principles are still equally valid – guidance development through CDOIF and sector skills initiatives are not limited to those businesses operating under COMAH.

---

*“Demonstration of process safety competence to the Competent Authority during COMAH inspections is now a key requirement. Through the Principles of Process Safety Leadership, clear measures of performance and control across operational sites can be established. These measures cover hardware, systems and people, and are essential to ensure site operations remain in safe control. Such assurance is transparently managed across the business from local site operation to senior management”*

*Jay Brooks, PX Limited*

---

---

*“For CLH-PS the adoption of the PSLG Principles has benefited the business in several ways:*

*Helping us to ensure robust compliance with COMAH, especially Regulation 5.*

*In aligning with the principles, we have been able to work with our trade association (Tank Storage Association [TSA]) and the Competent Authority to develop and implement joint industry/regulator guidance for environmental risk assessment – allowing us to assess the environmental risk profile of a terminal. This has been of significant financial benefit by reducing our potential capital investment expenditure through a thorough application of ALARP principles to reduce our risk profile compared with 10 years ago, and reductions in insurance premiums as a result.*

*An improved relationship with the Competent Authority as they see evidenced delivery of our improvement plans to address their strategic priorities derived following the Buncefield explosion and fires in 2005.*

*Through our membership of the TSA we can now work with the regulator to find solutions to issues, this helps us to ensure that our business in the UK remains competitive in the European market”*

*Charles Price, CEO, CLH-PS*

---

## How do I put the principles into practice?

Depending on the size and nature of your business adoption of the principles should be in a proportionate and scaled manner:

- **Process safety accountabilities** - defined and championed at board level. Board members, senior executives and managers should be held accountable for process safety leadership and performance;
- **At least one board member** - should be fully conversant in process safety management in order to advise the board of the status of process safety risk management within the organisation and of the process safety implications of board decisions;
- **Appropriate resources** - should be made available to ensure a high standard of process safety management throughout the organisation and staff with process safety management responsibilities should have or develop an appropriate level of competence;
- **Organisations**- should develop a programme for the promotion of process safety by active senior management engagement with the workforce, both direct and contract staff, to underline the importance of process safety leadership and to support the maintenance of a positive process safety culture within the organisation;
- **Systems and arrangements** - should be in place to ensure the active involvement of the workforce in the design of process safety controls and in the review of process safety performance;
- **Business risks** - relating to process safety should be assessed and reviewed regularly using an appropriate business risk analysis methodology;
- **Leading and lagging process safety indicators** - should be set for the organisation and periodically reviewed to ensure they remain appropriate for the needs of the business. Information on process safety performance should be routinely reviewed at board level and performance in the management of process safety risk is published in annual reports;
- **Engagement** - companies should actively engage with others within their sector and elsewhere to share good practice and information on process safety incidents that may benefit others. Companies should have mechanisms and arrangements in place to incorporate learning from others within their process safety management programmes;
- **Corporate Knowledge** - systems and arrangements should be in place to ensure the retention of corporate knowledge relating to process safety management. Such arrangements should include information on the basis of safety design concept of the plant and processes, plant and process changes, and any past incidents that impacted on process safety integrity and the improvements adopted to prevent a recurrence.

A full copy of the principles of process safety leadership can be found here: [www.hse.gov.uk/COMAH/buncefield/pslprinciples.pdf](http://www.hse.gov.uk/COMAH/buncefield/pslprinciples.pdf)

The Organisation for Economic Cooperation and Development (OECD) has also produced a helpful publication *Corporate governance for process safety: Guidance for senior leaders in high hazard industries* ([www.oecd.org/chemicalsafety/corporategovernanceforprocesssafety.htm](http://www.oecd.org/chemicalsafety/corporategovernanceforprocesssafety.htm)).

## COMAH Strategic Forum

*The COMAH Strategic Forum is a high level joint chemical industry and regulator forum working to improve major accident hazard management and raise standards across industry.*

### Conclusion

The COMAH Strategic Forum believes that adoption of these leadership principles can benefit all industries which have the potential for major incidents that can harm people or the environment. The principles do not represent large capital expenditure, but instead a philosophy of how we can work better to manage major hazard risks and collectively help to reduce major incidents.

For any business, access to process safety knowledge and expertise from within their own sector and beyond is invaluable. The principles of process safety leadership are a mechanism by which this can be achieved. Several trade associations work closely with their members to deliver the principles and have very active participation in the various joint industry and regulator forums. We encourage you to engage with your relevant trade association to find out more about how they can help.

By bringing industry and the COMAH Competent Authority together to share and agree on good practice we can help ensure a thriving, safe and sustainable industrial sector with a regulatory regime that supports business growth, high standards and strong compliance.

GB industry has many good practices and the challenge is to make those good practices into common practices. Through your involvement and help we can together Help Great Britain work well.