

# **Process Safety Leadership: Learning lessons from interventions**

## **Sharing common themes and best practice**



## Foreword

Major accidents kill people, ruin lives, damage the environment and destroy businesses. From Piper Alpha to Grenfell Tower, failure of leadership has been a significant causal factor in many major accidents across major hazard sectors, including nuclear, aviation, marine transport, rail, high rise residential buildings as well as chemicals & refining and oil & gas.

As a former senior leader in one of the UK's largest energy businesses, with responsibilities for managing and assuring process safety across operations in onshore and offshore oil & gas, bulk storage of hydrocarbons and both conventional and nuclear power generation, I am all too familiar with seeing first-hand how good - and poor - leadership can profoundly impact process safety.

In 2010, industry, unions and regulators jointly developed the eight Process Safety Leadership Principles that emerged from the 2005 Buncefield incident. These have been widely adopted across onshore and offshore major hazard industries. Subsequently, the COMAH Competent Authority has developed an operational delivery guide based on these principles. This guide has been used to conduct several inspections at COMAH regulated sites.

This report from the COMAH Strategic Forum sets out the key findings so far and has been developed within a working group of senior leaders from industry, regulators and the trade unions. Whilst there are some good examples of effective leadership, there is still much work to be done; this is reflected in the decision by the COMAH CA to issue three improvement notices specifically relating to leadership.

Our report starts by setting out the rationale for focusing on process safety leadership with the emphasis being placed on senior leaders across the organisation. It then summarises the findings so far, and most importantly, it explains in detail what the inspections have revealed and key lessons that leaders in major hazard organisations can directly learn from and apply. These lessons align to each of the eight principles of process safety leadership. Finally, this report summarises three areas of shared learning, highlighting what more senior leaders can do:

- The essential need for leaders to **communicate effectively** about process safety across the entire organisation
- The need for senior leaders, regardless of their role or responsibilities, to demonstrate an appropriate level of **process safety competency**
- The importance of having an effective set of **process safety performance indicators** that senior leaders understand and can challenge to continuously improve process safety performance

I encourage all senior leaders in major accident hazard businesses, including those regulated by COMAH but also those who manage major hazards that come under different regulatory regimes, to carefully read and act upon this report. It enables leaders to ask questions and receive assurance about how effective process safety leadership really is across their organisation, and to use the findings to develop an informed and achievable improvement plan

I strongly advise all business leaders in the Major Accident Hazard sectors to read and digest this report – and act on the recommendations and guidance that it provides.

Gus Carroll, Chair, COMAH Strategic Forum

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## Executive Summary

Senior leaders in any major hazard business should be asking themselves how confident they are that they could provide evidence to the regulatory authorities that the following key indicators of good major hazard leadership are robustly demonstrated in their business:

1. Active staff engagement - staff at all levels within the business are actively engaged, including operators, supervisors, health and safety professionals and managers, to determine if there are any issues that are concerning them with respect to major accident hazards
2. Effective peer review - understanding the effectiveness of their major hazard leadership by discussing with others within the organisation, including managers, supervisors and operators as well as peers in other organisations where appropriate
3. Understanding regulatory insights – have access to, and be informed about, all relevant safety information, including any Actions Legal raised as part of planned interventions by the COMAH CA such that they do not only react when prosecutions occur (refer also to item 8, Key Performance Indicators, below)
4. Fully layered engagement - determine how relevant safety information, including actions legal, can be clearly communicated through all levels of the business to encourage understanding and improvement
5. Senior-level awareness - senior leaders who have been exposed to and are aware of the Process Safety Leadership Group (PSLG) Principles of Process Safety Leadership, and who have attended relevant Safety Leadership training are able to better understand the challenges to their business and respond more effectively to the questions raised as part of the Major Hazard Leadership inspection.
6. Promoting a positive culture - the senior management team have the appropriate training to give them a clear insight into how to embed process safety management and promote a positive safety culture throughout their organisation. This should include visible engagement with COMAH CA inspectors during planned interventions.
7. Investing in competence - sufficient resource is provided to continually develop staff competency, and a robust competency assurance management plan is in place
8. Meaningful measures - KPI's are meaningful, useful and give the correct information, and are used in decision-making
9. Engaged with performance - understand and be prepared to challenge the information given
10. Responsive to signals - take notice of any warning signs, and be prepared to act on them

This report highlights common themes emerging from early Major Hazard Leadership inspections and where gaps in knowledge have been identified when providing evidence of compliance.

Note that the terms Process Safety Leadership, Major Hazard Leadership and Safety Leadership are used interchangeably in this document. Reference should be made to the section *What is Major Hazard Leadership and why is it important?* for a definition of leadership in terms of process safety.

## **What is Major Hazard Leadership and why is it important?**

Understanding and managing risks are critical to any business, whether these are operational, financial, safety, environmental, ethical, or reputational risks. If these risks are not managed, they have the potential to harm people, damage the environment and destroy facilities along with corporate reputation. Good Major Hazard Leadership (MHL) helps an organisation to ensure these risks are given the resource, priority and attention that they need to reduce the likelihood of a major accident.

Good leadership is critical to sustained management of risks and senior leaders need to:

- understand what can go wrong that could cause a major accident
- know what systems are in place to stop this happening, and
- get the right information to provide assurance that those systems are working effectively

Following a number of high-profile incidents, several industry sectors, trade associations, the COMAH Competent Authority and Trades Unions worked collectively to develop and support a set of Principles of Process Safety Leadership to help senior leaders achieve these ambitions, and to demonstrate a clear commitment to the management of major hazard risks. These principles include:

- understanding leadership and performance for which they are ultimately responsible.
- at least one board member being conversant in the management of major hazard risks.
- understanding the implications of business decisions on major hazard management - in the short term and the long term.
- promoting a positive culture in the business by being visible and passionate about managing major hazard risks.
- involving the workforce to ensure that staff understand their own role in managing major hazard risks.
- ensuring there are meaningful indicators of how well major hazard risks are being managed.
- seeking to learn from all relevant incidents both from within the business and externally.

The Principles of Process Safety Leadership can be found here:

[Process Safety Leadership Group \(PSLG\) - Principles of process safety leadership](#)

The COMAH Strategic Forum identified Process Safety Leadership as a strategic topic. It worked with the COMAH Competent Authority to develop an operational delivery guide for inspecting major hazard leadership and leadership failures in major accidents.

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### Intervention process

In 2019 the COMAH Strategic Forum launched its year of Process Safety Leadership. To coincide with this initiative, the COMAH Competent Authority (CA) published its Operational Delivery Guide *Inspecting Major Hazard Leadership and Investigating Leadership Failures in Major Accidents* and the supporting *Major Hazard Leadership Intervention Tool*.

The Operational Delivery Guide is part of the COMAH CA strategy for encouraging strong leadership and preventing major accidents in major hazard industries. It underpins the CA's programme for ensuring effective major hazard leadership in preventing, controlling and mitigating major accidents.

Inspections by CA partners began in 2021 and at the time of publication of this report several have been completed. Not every COMAH operator will receive a Major Hazard Leadership inspection, these are intelligence led and will be prioritised based on whether:

- the operator is known to have an issue
- CA partners require additional assurance
- Major Hazard Leaders need to be engaged to address and progress known issues

Major Hazard Leadership inspections have been scheduled throughout the intervention periods 2022/23 and 2023/24. These will be expanded based on intelligence gathered from COMAH Intervention Managers and other specialist inspection teams.

### *Delivery Guide*

The Major Hazard Leadership Operational Delivery Guide and supporting Intervention Tool identifies:

- eight principles of Major Hazard Leadership - what is required
- organisation and resources – how these are delivered
- sample questions – areas for consideration by leaders
- example demonstrations – what effective Major Hazard Leadership looks like

Ahead of any inspection, the Delivery Guide and Intervention Tool are provided to the COMAH operator.

### *Inspection Process*

Major Hazard Leadership inspections may take place remotely, on site, or adopt a hybrid approach. Understanding the time constraints of senior leaders, the COMAH CA works with COMAH Operators to select the most appropriate method of inspection, particularly where participants may be based outside of the U.K.

Intervention teams typically consist of senior representatives from the relevant COMAH CA partners:

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- Specialists, Heads of Unit and Area Environmental Managers
- Principal Inspectors and Team Leaders
- COMAH Intervention Managers and Agency Officers

Following the inspection, a report will be developed and shared with the COMAH Operator, together with a performance rating.

TOPIC PERFORMANCE SCORE					
60	50	40	30	20	10
No assurance	Poor assurance	Limited assurance	Some assurance	Good assurance	Strong assurance
No evidence that any PSLG leadership principles or other relevant good practice are embedded	Little evidence that any PSLG leadership principles or other relevant good practice are embedded	Limited evidence that some PSLG leadership principles or other relevant good practice are embedded	Evidence that most PSLG leadership principles or other relevant good practice are embedded	Evidence that all PSLG leadership principles or other relevant good practice are embedded	Goes beyond embedding the PSLG leadership principles or other relevant good practice
Failure to recognise the importance of effective MH leadership	Poor recognition of the importance of effective MH leadership	Limited recognition of the importance of effective MH leadership	Recognition of the importance of effective MH leadership	Recognition of the importance of effective MH leadership and steps taken to verify adequacy of leadership arrangements	Senior leaders exceptionally proactive and engaged, striving for continuous improvement
Evidence that leadership failures are having a substantial negative impact on management of major hazard risks	Evidence that leadership failures are having a significant negative impact on management of major hazard risks	Evidence that leadership failures may be having a negative impact on management of major hazard risks	No evidence that leadership failures are having a significant negative impact on management of major hazard risks	Evidence that good leadership is having a positive impact on management of major hazard risks	Strong evidence that good leadership is having a positive impact on management of major hazard risks
Insufficient level of competency in MH risks at senior leadership level	Senior leaders' competency in controlling MH risks is poor	Senior leaders' competency in controlling MH risks is limited	At least one senior leader can demonstrate competency in controlling MH risks	Most senior leaders can demonstrate competency in controlling MH risks	Senior leaders can demonstrate excellent competency in controlling MH risks

Table 1: Major Hazard Leadership performance rating table

Reference should be made to the COMAH CA publication *Understanding COMAH: What to expect from the Competency Authority. Guidance for COMAH Operators* for further information on the inspection process.



### *Regulatory Expectations*

The COMAH CA seeks assurance that the following expectations have been met when completing a Major Hazard Leadership inspection. The following is not exhaustive and COMAH Operators should refer to the Operational Delivery Guide and Intervention Tool for further information:

- leadership is demonstrated at all levels within the business
- process safety competency is demonstrated at all levels within the business, including leadership teams and senior managers
- the risk profile of the site is understood
- sound risk assessment has been carried out
- there is a robust management of change procedure in place
- assurance that the integrity of operations is maintained and not compromised for short term gain
- there is effective communication
- good intelligence both internally and externally from the business is used to provide assurance
- the business is a learning organisation – there are effective arrangements in place to share and learn from best practice and knowledge both internally and externally from the business
- process safety performance is reported to, and understood by, senior leaders

**Common themes from interventions**

This report is based on feedback from the COMAH CA on the first 19 Major Hazard leadership inspections.

There are eight Major Hazard Principles identified in the Major Hazard Leadership Intervention Tool which have been addressed as part of these inspections, these are:

1. Safety leadership is at the core of managing a major hazard business
2. Major hazard leadership requires board level involvement and competence
3. Good major hazard management does not happen by chance and requires constant active engagement
4. Board-level visibility and promotion of major hazard leadership is essential to set a positive safety culture throughout the organisation
5. Engagement of the workforce is needed in the promotion and achievement of good major hazard control leadership
6. Monitoring major hazard performance is central to ensuring business risks are being effectively managed
7. Publication of major hazard performance information provides important assurance about the management of risks by an organisation
8. Sharing best practice across industry sectors, and learning & implementing lessons from relevant incidents in other organisations, are important to maintain the currency of corporate knowledge and competence

Not all these principles will be raised and examined at every inspection. Those principles selected for inspection are based on intelligence and feedback on site performance by COMAH CA inspection teams. Of the 19 inspections carried out the following principles were examined.

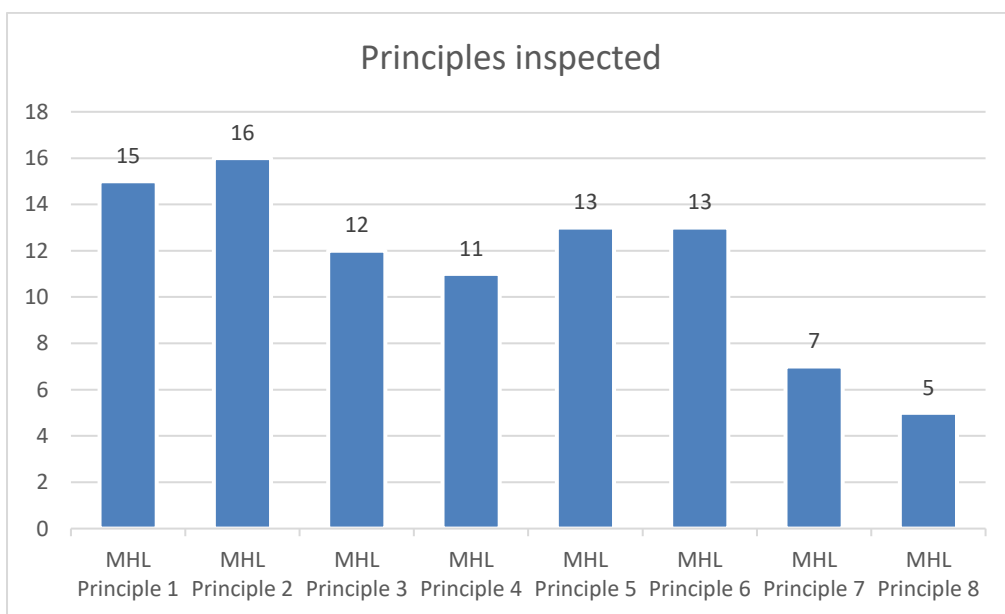


Table 2: Major Hazard Leadership principles inspected

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Each of the COMAH operators visited as part of the initial Major Hazard Leadership inspections were scored using the performance rating table in the Operational Delivery Guide.

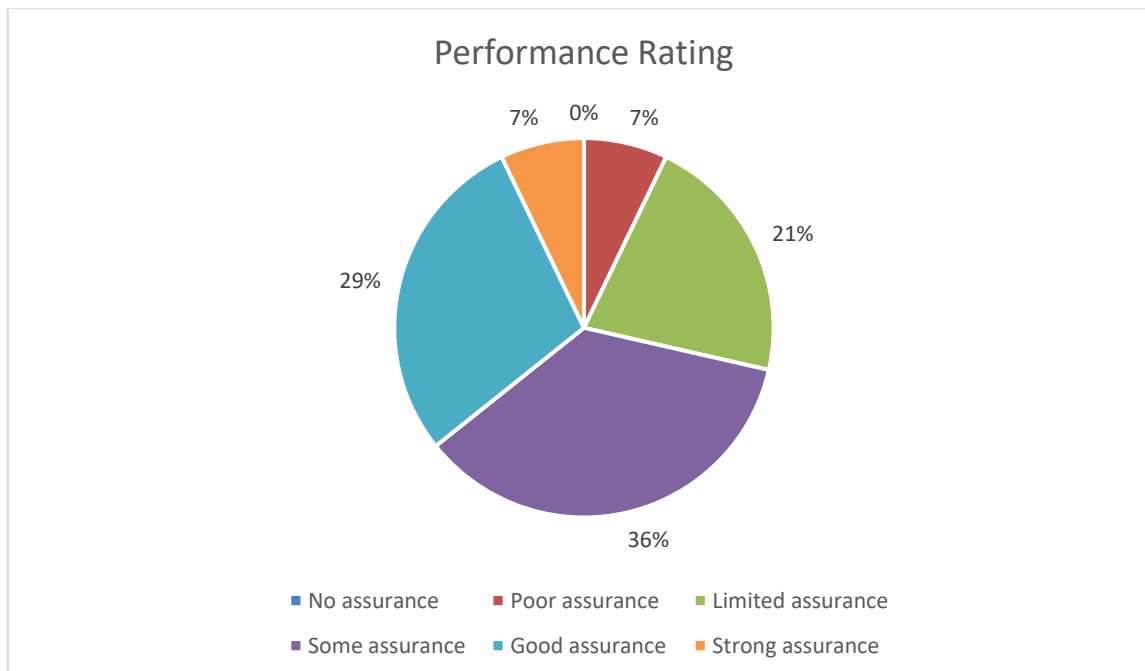


Table 3: Major Hazard Leadership performance

In the case of the highest performing company with a performance of Strong Assurance, the COMAH CA commented that:

*From this sample inspection we conclude that you have met, or exceeded, all of the example demonstrations (indicating “what good looks like”). Consequently, we are scoring your performance in this area, based on the sample described, as “exemplary”.*

In the case of the lowest performing company with a performance of Poor Assurance, it was necessary to serve three improvement notices. These notices were served because the COMAH Operator:

1. failed to demonstrate that they have taken all measures necessary to prevent major accidents, in particular that the major accident prevention policy (MAPP) is implemented by a Safety Management System which satisfies the requirements of Schedule 2
2. failed to address the matters specified in Schedule 2, paragraph 2, in particular the identification of the training needs of personnel involved in the management of major hazards and provide adequate training in the requirements of COMAH
3. failed to demonstrate that they have taken all measures necessary to prevent major accidents and limit their consequences for human health and the environment, in particular they do not have an integrated and comprehensive system that systematically and continuously identifies, reduces and manages major hazards.

Recommendations were raised for each of the Major Hazard Leadership interventions, including the business which was rated as having strong assurance. The topics covered by these recommendations can be broken down as follows.



Table 4: MHL recommendation topics

Common themes and trends emerging from the Major Hazard Leadership inspections, against each of the eight principles have been identified as follows:

1. Safety leadership is at the core of managing a major hazard business
  - *Major Hazard Leadership should be clearly defined and written into every senior leader's job description*
  - *Change management is critically important and there should be a robust system in place*
  - *The environment is also part of COMAH compliance and must be considered when effectively managing the business*
2. Major hazard leadership requires board level involvement and competence
  - *Competence on Major Hazard Leadership is required at Board level – it should not be left to one individual*
  - *Read and understand the key elements of the Safety Report*
  - *Senior leaders headquartered outside of the UK may not have a clear understanding of the UK COMAH regulations and the risk-based approach to safety*
3. Good major hazard management does not happen by chance and requires constant active engagement

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- *There is no one-size-fits all solution to Major Hazard Leadership, each business and each site is unique and has unique challenges*
  - *Plan changes appropriately and with plenty of time. If there are known delays (for example in updating Safety Report) advise the COMAH CA as required*
4. Board-level visibility and promotion of major hazard leadership is essential to set a positive safety culture throughout the organisation
  5. Engagement of the workforce is needed in the promotion and achievement of good major hazard control leadership
    - *Communication within the business is key, both upwards and downwards*
  6. Monitoring major hazard performance is central to ensuring business risks are being effectively managed
    - *Be aware of your Safety Management System and monitor how effective and efficient it is*
  7. Publication of major hazard performance information provides important assurance about the management of risks by an organisation
    - *Key Performance Indicators (KPI's) for process safety should be understood, reviewed and refreshed to avoid complacency*
  8. Sharing best practice across industry sectors, and learning & implementing lessons from relevant incidents in other organisations, are important to maintain the currency of corporate knowledge and competence
    - *The COMAH CA is open to working together with COMAH Operators to improve Major Hazard Leadership. If there are concerns or queries, these should be discussed in the first instance with the COMAH Intervention Manager. Relevant Trade Associations may also be able to assist sharing best practice and lessons.*

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### Shared learning – what more can you do?

The COMAH Strategic Forum Leadership Working Group analysed the common themes emerging from Major Hazard Leadership inspections. It identified supplementary areas that leaders can focus on to improve overall safety performance and better understand the Major Accident Hazards that could impact their business.

#### *Communication*

Communication is key. Senior leaders should:

- ensure staff at all levels within the business are actively engaged, including operators, supervisors, health and safety professionals and managers, to determine if there are any issues that are concerning them
- understand the effectiveness of their major hazard leadership by discussing with others within the organisation, including managers, supervisors and operators
- have exposure to all relevant safety information, including any Actions Legal raised as part of planned interventions by the COMAH CA such that they do not only react when prosecutions occur (refer also to Key Performance Indicators below)
- determine how relevant safety information, including actions legal, can be clearly communicated through all levels of the business to encourage understanding and improvement

#### *Competency*

Those senior leaders who were exposed to and aware of the Process Safety Leadership Group (PSLG) Principles of Process Safety Leadership, and who had attended relevant Safety Leadership training were able to better understand the challenges to their business and respond more effectively to the questions raised as part of the Major Hazard Leadership inspection.

Senior leaders should:

- use the information provided in the references and resources section of this document to understand and become conversant in the PSLG Principles of Process Safety Leadership
- ensure that they and their senior management team have the appropriate training to give them a clear insight into how to embed process safety management and promote a positive safety culture throughout their organisation
- ensure that sufficient resource is provided to continually develop staff competency, and a robust competency management plan is in place

#### *Key Performance Indicators (KPI)*

KPI's for process safety (sometimes referred to as Process Safety Performance Indicators, PSPI) are an essential tool to understand the safety performance of a business.

Senior leaders should:

- work with their teams to ensure that KPI's are meaningful, useful and give the correct information.

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- understand and be prepared to challenge the information that they are given
- ensure that they take notice of any warning signs, and be prepared to act on them

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### References and resources

The following guidance and resources are available to all businesses to help improve Major Hazard Leadership:

[Operational Delivery Guide Inspecting Major Hazard Leadership and Investigating Leadership Failures in Major Accidents](#)

[Major Hazard Leadership Intervention Tool](#)

[Senior Leaders: What you need to know about major hazard leadership](#)

[Template Safety Leadership Charter: Our commitment to good major hazard leadership](#)

[Process Safety Leadership Group \(PSLG\) - Principles of process safety leadership](#)

[Corporate Governance for Process Safety - Guidance for senior leaders in high hazard industries](#)

[Managing Risk: The hazards that can destroy your business - A guide to leadership in process safety](#)

[Developing process safety indicators: A step-by-step guide for chemical and major hazard industries](#)

[Process Safety Leadership Training Standard](#)

Chemical and Downstream Oil Industries Forum Guidance Adapting to Climate Change (awaiting publication)

Businesses are also actively encouraged to engage with their relevant Trade Association. Trade Associations often have access to extensive information, peer-to-peer resources and be engaged in relevant discussions with the COMAH CA and other relevant stakeholders.