

Guidance on meeting expectations of
El Process safety management framework

Element 15: Inspection and maintenance

GUIDANCE ON MEETING EXPECTATIONS OF EI PROCESS SAFETY
MANAGEMENT FRAMEWORK

ELEMENT 15: INSPECTION AND MAINTENANCE

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e: pubs@energyinst.org

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- *Element 4: Workforce involvement*
- *Element 5: Communication with stakeholders*
- *Element 6: Hazard identification and risk assessment*
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- *Element 12: Management of change and project management*
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FOREWORD

Process safety management (PSM) is vital to ensuring safe and continued operations in major accident hazard (MAH) organisations. However, PSM is a multifaceted process, and a number of high profile incidents since 2005 have suggested that without a holistic understanding of the various factors required for effective PSM it can be difficult and inefficient to ensure, and measure, performance.

In 2010 the Energy Institute (EI) published *High level framework for process safety management (PSM framework)*, which aimed to define what PSM should involve. Divided into four focus areas (process safety leadership, risk identification and assessment, risk management, and review and improvement) and sub-divided into 20 'Elements', it sets out a framework of activities MAH organisations should undertake to ensure PSM. Each element lists a number of high level activities organisations should meet (expectations).

EI *Guidance on meeting expectations of EI Process safety management framework* is a series of 20 publications (guidelines) that build on the *PSM framework*. Commissioned by the EI Process Safety Committee (PSC) each guideline captures and presents current industry good practices and guidance on how organisations can meet the expectations set out in each element of the *PSM framework*. Each guideline includes:

- a logical flow diagram of activities (steps) the organisation should undertake to manage that element;
- descriptions of those steps;
- example performance measures (PMs) to measure the extent to which key steps have been undertaken;
- a list of further resources to help undertake key steps;
- a table mapping the steps against the expectations in the *PSM framework*, and
- annexes of useful information.

Readers implementing the guidance in this publication should be aware of the *PSM framework* and the other publications in this series, particularly if they are a manager with oversight of the wider implementation of PSM.

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INTRODUCTION

1.1 INSPECTION AND MAINTENANCE

This guideline sets out good practice for the management of assets and work equipment inspection and maintenance. Management should ensure that the necessary inspection and maintenance requirements are identified and carried out to reduce the likelihood of a significant incident as a result of their failure.

This guideline set out good practices for the management of inspection and maintenance, which should ensure that assets and work equipment are identified, inspected and maintained in an appropriate way to assure their integrity is maintained at the required level.

In many cases the inspection and maintenance criteria for assets and work equipment may be governed by the requirements of legislation, licensing requirements or industry and company standards. However, the application of this guideline will bring together all aspects of inspection and maintenance, of assets and work equipment, in order to ensure that there is a systematic risk managed approach.

1.2 EXPECTATIONS FOR ELEMENT 15: INSPECTION AND MAINTENANCE

Element 15 of EI *High level framework for process safety management* ('PSM framework') describes 10 expectations – arrangements and processes that organisations should (to an appropriate degree) have in place in order to ensure they are managing this aspect of PSM appropriately:

- | | |
|-------------|--|
| 'Overview | Maintaining the integrity of plant and equipment is an essential requirement for HS&E and process safety.
Management must ensure that the necessary inspection and maintenance requirements are identified and carried out to reduce the likelihood of a significant incident as a result of failure of plant or equipment. |
| 15.1 | Assets are uniquely identified on an asset register which provides up-to-date asset lists and equipment records, including location and equipment specification data. The asset register provides a basis for inspection and maintenance planning. |
| 15.2 | The asset inspection and maintenance programmes are risk based and address and integrate long-term asset integrity, HS&E and process safety compliance assurance. |
| 15.3 | There are procedures to ensure that asset inspection and maintenance programmes are reviewed regularly commensurate with risk, using findings from the programmes, industry experience and incidents to identify and address issues and opportunities for improvement, so that they are kept up to date as living systems. |
| 15.4 | Feasible plans and schedules are developed for execution of asset inspection and maintenance programmes. |

- 15.5** Adequate numbers of competent personnel are available to carry out the inspection and maintenance programmes.
- 15.6** There are procedures to ensure that findings and recommendations from the asset inspection and maintenance programmes are appropriately prioritised and followed up.
- 15.7** Inspection and maintenance programmes are approved by specific named competent individuals.
- 15.8** Deviations from approved inspection and maintenance programmes are approved by specified named competent individuals commensurate with the risk.
- 15.9** Arrangements for inspection and maintenance programmes are understood and followed; understanding of arrangements and compliance with them is regularly tested.
- 15.10** Compliance and performance trends are reviewed by specified levels of management.'

This guideline provides a process, along with guidance, to help organisations meet these expectations. It also suggests a number of compliance checks and performance measures (PMs) to measure the extent to which key activities involved in meeting these expectations have been or are being undertaken.