

Elements of a Fixed Equipment Mechanical Integrity (FE MI) Program

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Contents

	Page
1	Scope..... 1
1.1	General..... 1
1.2	Purpose..... 1
1.3	Limitations..... 1
2	Normative References..... 1
3	Terms, Definitions, Acronyms, and Abbreviations..... 1
3.1	Terms and Definitions..... 1
3.2	Acronyms and Abbreviations..... 4
4	Fixed Equipment in an MI Program..... 5
4.1	Pressure Vessels..... 5
4.2	Storage Tanks..... 6
4.3	Piping and Pipelines..... 7
4.4	Pressure Relief Devices..... 8
4.5	Fired Equipment..... 9
4.6	Critical Utility Systems..... 9
4.7	Equipment that Combines Fixed Equipment (FE) and Other Equipment Types..... 9
4.8	Other Fixed or Periphery Equipment..... 10
5	Written Guidance..... 11
5.1	General..... 11
5.2	Policies, Processes, and Systems..... 12
5.3	Programs..... 12
5.4	Procedures..... 13
5.5	Detailed Work Instructions..... 14
6	Training and Qualifications..... 15
6.1	General..... 15
6.2	Certifications..... 16
6.3	Experience..... 16
6.4	Local Process and Safety Training..... 16
6.5	Documentation..... 16
7	Inspection and Testing..... 16
7.1	General..... 16
7.2	ITPM Tasks..... 16
7.3	ITPM Methodology and Frequency..... 17
7.4	Inspection Documentation (Inspection/Test Report Templates)..... 17
8	Deficiency..... 18
8.1	General..... 18
8.2	Equipment Deficiency Management Process..... 19
8.3	Program Deficiency Management Process..... 20
9	Quality Assurance..... 21
9.1	General..... 21
9.2	QA for Design and Fabrication of New Equipment (Prior to Installation)..... 21
9.3	QA for Receiving, Storage, and Retrieval..... 21
9.4	QA for Construction and Installation..... 22

Contents

	Page
9.5 QA for In-service Inspections, Repairs, Alterations, and Rerating	22
9.6 QA for Temporary Installations and Repairs	23
9.7 QA for Reuse of Decommissioned or Purchased Equipment	23
9.8 QA for Spare Parts	23
9.9 QA for Contractor Supplied Equipment	24
10 Roles and Responsibilities Associated with MI	24
11 Process Safety Information	25
11.1 General	25
11.2 PSI Management Program	26
12 Repair Organizations	27
12.1 Qualified Repair Organizations	27
12.2 Repair Stamps	28
12.3 Repair Data Reports (Forms)	28
12.4 Repair Inspection Reports and Records	29
13 Pre-startup Safety Review (PSSR)	30
13.1 General	30
13.2 Description	30
13.3 Checklist	30
13.4 Documentation	30
14 Management of Change	30
14.1 General	30
14.2 Creating a MOC Process	30
14.3 When to Initiate a MOC	31
14.4 MOC Review and Approval	31
14.5 Updating MOC Associated Documentation and Closure	31
15 Integrity Operating Windows (IOWs)	31
15.1 General	31
15.2 Establishing IOWs	32
15.3 Management of IOWs	32
16 Key Performance Indicators	32
16.1 General	32
16.2 Challenges Associated with KPIs	33
16.3 Mistakes Associated with KPIs	33
16.4 Reporting	33
17 Program Audits	34
17.1 General	34
17.2 Audit Scope	34
17.3 Audit Team Members	34
17.4 Audit Activities	35
17.5 Site Organization and Leadership	35
17.6 Continual Improvement	35
18 Safe Work Practices	36

Contents

	Page
19 Inspection Data Management Systems (IDMS).....	37
19.1 General.....	37
19.2 Benefits.....	37
19.3 Roles and Responsibilities.....	37
19.4 Types of IDMS.....	37
19.5 Selecting an Inspection Data Management System.....	38
20 Managing Codes and Standards Updates and Revisions.....	38
20.1 General.....	38
20.2 Selection, Application, and Revisions.....	39
21 Pressure Equipment Integrity Incident Investigation.....	39
Annex A (informative) Example Fixed Equipment Codes, Standards, and Useful Documents Web Diagram.....	41
Annex B (informative) Examples of FE MI PSSR Items.....	43
Annex C (informative) Examples of Codes and Standards Technical Bodies.....	45
Bibliography.....	48

Figures

1 Example of a Company Written Document Framework.....	12
A.1 Example Fixed Equipment Codes, Standards, and Useful Documents Web Diagram.....	42

Tables

1 Example Deficiency Types.....	19
2 Mechanical Integrity Roles and Responsibilities.....	25
3 Typical PSI for Fixed Equipment.....	26

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Elements of a Fixed Equipment Mechanical Integrity (FE MI) Program

1 Scope

1.1 General

Mechanical integrity (MI) is a key pillar in safe operation of any process facility. The term mechanical integrity (or asset integrity) applies broadly to all equipment types including fixed equipment, rotating equipment, mitigation equipment (lower explosive limit, deluge, gas detector, suppression), and instrumentation/controls. Inspection, testing, and preventive maintenance tasks for each equipment type are crucial for safe operation and reliability of a process facility.

1.2 Purpose

The purpose of this document is to provide information on the MI program for the different types of fixed equipment. Other process equipment, such as rotating equipment and instrumentation/controls, are not covered in this document. Development of MI programs in various industries involves interpretation of regulations and case-by-case decision making, depending on the complexity of the equipment. The contents of this document are intended to assist in determination of:

- the key elements and considerations in developing a fixed equipment MI program based on process safety management (PSM) guidelines/principles (or best practices);
- how API documents and other codes, standards, and guidance documents fit into the MI program.

1.3 Limitations

The principles outlined are intended to be used by owner-operators for fixed equipment in their facilities to align with construction codes, inspection codes, standards, or other prevailing requirements. This document is not used as a substitute for a complete Mechanical Integrity Program as defined by applicable local regulations (e.g. OSHA¹ 1910.119) but only as a compendium of principles and common industry practices by which such a program is established.

Local regulatory or jurisdictional requirements may be in contradiction with some of the suggestions provided in this document or some of the referenced codes and standards. In these cases, local regulatory or jurisdictional requirements take precedence.

2 Normative Reference

No other document is identified as indispensable or required for the application of this publication. A list of documents associated with API 592 is included in the bibliography.

3 Terms, Definitions, Acronyms, and Abbreviations

3.1 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1 Aboveground storage tank

A vertical, cylindrical structure built above ground level and designed to hold a liquid or gas, but other shapes are also used.

¹ U.S. Department of Labor, Occupational Safety and Health Administration, 200 Constitution Avenue, NW, Washington, DC 20210, www.osha.gov.