

PSM · INTERMEDIATE · 1 DAY

Mechanical Integrity and Safety-Critical Equipment

Building an MI programme around the equipment that keeps hazards contained

DURATION
1 day

LEVEL
Intermediate

FORMAT
On-site classroom · virtual instructor-led

LANGUAGE
English

MAX. PARTICIPANTS
16

1

SCE identification exercise on a unit

5

equipment classes covered

1

performance-standard template

Overview

Mechanical integrity is the PSM element with the most records and the least clarity about which ones matter. The course explains how to identify safety-critical equipment from the PHA and bow-ties, write performance standards for it, set inspection and test intervals using API 510/570/580 and IEC 61511, and manage deficiencies and deferrals so that a known defect never becomes an accepted condition. Participants identify the SCE on a unit and write a performance standard for one item.

Learning outcomes

- Identify safety-critical equipment and link each item to the hazard it controls
- Write performance standards: functionality, availability, reliability, survivability
- Set inspection intervals for pressure vessels, piping, tanks, relief devices and SIF using RBI and proof-test logic
- Manage deficiencies, temporary repairs and deferrals with the right approval level
- Assure quality of new and repaired equipment: materials, procedures, positive material identification
- Use MI KPIs: overdue inspections, backlog, failures on test, integrity operating windows

Who should attend

Inspection, maintenance and reliability engineers; PSM coordinators owning the MI element; operations engineers responsible for safeguards on their unit

Course outline

MORNING

MI incidents and what auditors find · OSHA 1910.119(j) and RBPS asset integrity · SCE identification from PHA and bow-ties · performance standards · pressure vessel and piping inspection (API 510/570) · RBI concepts (API 580/581)

AFTERNOON

Relief devices, tanks and rotating equipment · SIF proof testing and IEC 61511 · integrity operating windows (API 584) · deficiency management and deferrals · QA/QC of new equipment · MI metrics · SCE exercise on a unit

Standards referenced

OSHA 29 CFR 1910.119(j) API 510 / 570 / 653 API 580 / 581
API 584 API 576 IEC 61511

Tools & exercises

Performance-standard and deferral templates provided; exercises on participants' own equipment lists

What's included

- ✓ Course manual and slide pack
- ✓ Software access for the course
- ✓ Post-course Q&A with the instructor
- ✓ Exercise and case-study pack
- ✓ Competency quiz and certificate
- ✓ Templates used in the exercises

PREREQUISITES

Plant engineering or inspection experience

CERTIFICATION

Certificate of completion

INSTRUCTORS

Practising engineers — TÜV HAZOP Leader, CCPSC and IEC 61511 Functional Safety certified — with 200+ years of cumulative plant experience.

Book this course or build a custom curriculum

On-site at your plant or virtual · in-house groups · competency assessment included

sales@cerasus.ai · +974 5506 2743

Cerasus Technologies QFZ LLC · Ras BuFontas Free Zone · Doha, Qatar