QUEST
Professional Center

PROFESSIONAL TRAINING COURSE

Course No. 1842

API 570 Piping Inspection Code Training Course

DOWNSTREAM OPERATIONS, REFINING, PETROCHEMICALS & INDUSTRIAL OPERATIONS
OIL & GAS

DURATION
5 Days

DELIVERY
Classroom

Course Overview

The API 570 Piping Inspection Code Training Course provides a comprehensive professional program focused on the inspection, condition assessment, integrity management, repair, alteration, and monitoring of in-service metallic piping systems. The course develops practical capabilities for applying API 570 principles to piping systems operating in refineries, petrochemical plants, chemical facilities, terminals, and other process industries.

Participants will examine the fundamentals of in-service piping inspection, including piping components, inspection classifications, inspection planning, corrosion monitoring, thickness measurement, non-destructive examination, damage mechanisms, and evaluation of inspection results. The program emphasizes the relationship between piping condition, operating conditions, degradation mechanisms, and safe continued service.

A significant part of the course focuses on identifying and evaluating common piping damage mechanisms such as general corrosion, localized corrosion, erosion, corrosion under insulation, cracking, high-temperature degradation, vibration-related damage, and weld deterioration. Participants will learn how to establish appropriate inspection locations, interpret thickness data, monitor corrosion rates, and identify conditions requiring further assessment or intervention.

The course also addresses repair, alteration, rerating, inspection intervals, risk-based inspection concepts, documentation, and integrity management. Through practical exercises and industry-based scenarios, participants will develop the ability to translate inspection findings into technically sound recommendations that support safety, reliability, regulatory compliance, and long-term asset performance.

Objectives

- By the end of the course, participants will be able to:
- Analyze the scope, principles, and application of API 570 for in-service piping inspection.
- Identify piping components, circuits, classes, and critical inspection locations.
- Develop systematic piping inspection plans based on service conditions and damage mechanisms.
- Identify and evaluate common piping degradation and failure mechanisms.

- Apply appropriate visual inspection and non-destructive examination techniques.
- Analyze thickness measurement data and determine corrosion-rate trends.
- Evaluate minimum required thickness and remaining service considerations.
- Establish appropriate inspection intervals based on piping condition and risk.
- Assess repair, alteration, and rerating requirements for in-service piping.
- Evaluate the impact of process changes and operating conditions on piping integrity.
- Apply risk-based inspection principles to prioritize piping inspection activities.
- Improve piping inspection documentation, reporting, and integrity-management decisions.

Who Should Attend

This course is designed for piping inspection engineers, mechanical engineers, corrosion engineers, integrity engineers, maintenance engineers, reliability professionals, and inspectors responsible for in-service piping systems.

It is also suitable for engineering and maintenance supervisors, plant inspection personnel, asset integrity specialists, process engineers, quality professionals, welding specialists, and technical personnel involved in piping inspection, corrosion monitoring, repair, alteration, and integrity assessment.

The program is particularly valuable for managers, technical leaders, and decision-makers responsible for piping integrity, inspection strategies, maintenance planning, operational safety, reliability improvement, and decisions related to continued service, repair, or modification of process piping systems.

Learning Outcomes

- Upon completion of the course, participants will be able to:
- Explain the purpose, scope, and key principles of API 570.
- Identify major in-service piping components and inspection requirements.
- Classify piping systems according to service conditions and inspection needs.
- Identify applicable damage mechanisms and their locations within piping systems.
- Develop inspection plans based on piping condition, service, and risk.

- Perform and interpret visual inspection and thickness measurements.
- Analyze corrosion rates and thickness trends.
- Evaluate piping condition and remaining service considerations.
- Determine appropriate inspection intervals and monitoring requirements.
- Assess piping repair, alteration, and rerating requirements.
- Interpret non-destructive examination findings relevant to piping integrity.
- Apply risk-based inspection principles to prioritize inspection resources.
- Improve technical inspection reports and integrity documentation.
- Support engineering and management decisions related to piping reliability and safe operation.

Course Outline

DAY 01

API 570 Fundamentals & In-Service Piping Inspection

- Scope, purpose, principles, and application of API 570.
- Piping systems, components, circuits, classes, and service categories.
- Inspection responsibilities, inspection planning, records, and documentation.
- Identification of critical piping systems and inspection locations.

> **PRACTICAL APPLICATION**
> Develop an initial inspection plan for an in-service process piping system.

DAY 02

Piping Damage Mechanisms & Inspection Techniques

- General and localized corrosion, pitting, erosion, and erosion-corrosion.
- Corrosion under insulation, galvanic corrosion, and environmental degradation.
- Cracking, fatigue, vibration, weld deterioration, and high-temperature damage.
- Visual inspection and non-destructive examination techniques.

DAY 02 — CONTINUED

PRACTICAL APPLICATION

Analyze piping damage cases and identify the probable mechanism, affected locations, and required inspection method.

DAY 03

Thickness Measurement & Piping Integrity Assessment

- Thickness measurement principles and inspection-point selection.
- Analysis of thickness data and corrosion-rate calculations.
- Minimum required thickness and remaining service considerations.
- Evaluation of inspection results, anomalies, and deterioration trends.

PRACTICAL APPLICATION

Analyze piping thickness data and determine corrosion trends and areas requiring intervention.

DAY 04

Inspection Intervals, Repair, Alteration & Rerating

- Establishing inspection intervals based on piping condition and service.
- Repair strategies for deteriorated piping components.
- Alteration, replacement, welding, examination, and testing considerations.
- Rerating, process changes, and return-to-service requirements.

PRACTICAL APPLICATION

Develop a repair and alteration strategy for an in-service piping system with identified integrity concerns.

DAY 05

Risk-Based Inspection & Piping Integrity Management

- Risk-based inspection principles and prioritization of piping systems.
- Integration of inspection, corrosion monitoring, maintenance, and operations.
- Documentation, reporting, quality assurance, and inspection records.
- Long-term piping integrity, reliability improvement, and management decision-making.
- Final Application: Develop a comprehensive API 570 piping inspection and integrity-management program covering damage mechanisms, inspection planning, thickness monitoring, corrosion assessment, inspection intervals, repair, alteration, rerating, risk prioritization, documentation, and long-term reliability.

Register or Request More Information

Course page: https://quest-training.com/courses/api-570-piping-inspection-code-training-course
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