

€ TRAINING

Piping Inspection of Specification API 570





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Introduction:

This is an intensive 5 days training to provide a comprehensive understanding of the design, inspection, and maintenance of process piping based on API 570 standards. It aims to provide the oil, gas, and petrochemical industries with the assurance that piping inspectors have been trained under this internationally recognized program to have the required knowledge and experience for inspection of in-service process piping.

Course Objectives:

At the end of this course the participants will be able to:

- Explore the Knowledge of API publications and other international standards that include:
 - ASME B31.3 - Process Piping
 - ASME B16.5 - Pipe Flanges and Flanged Fittings
 - ASME Sect V - Nondestructive Examination
 - API 570 - Piping Inspection Code
 - API RP 571 - Damage Mechanisms Affecting Fixed Equipment in the Refinery Industry
 - API RP 574 - Inspection Practices for Piping System Components
 - API RP 577 - Welding Inspection & Metallurgy
 - API RP 578 - Material Verification Program for New and Existing Alloy Piping
- Explore the knowledge and expertise required for maintenance, rating, inspection, repair, and alteration of in-service process piping system
- Explore the information of API Individual Certification Program and API 570 Inspector certification process
- Practice tests simulating the API 570 ICP exam
- Compete and confidence to finally achieve API 570 ICP qualification

Targeted Audience:

- The course is designed for Piping inspection engineers
- Inspection personnel
- Operating engineers
- Managers
- Maintenance engineers and personnel involved in the design, operation, inspection, and maintenance of process piping.

Course Outlines:

Unit 1: Introduction, Publications, Course Outline & Body of Knowledge:

- API 570, Piping Inspection Code:
- Scope and definitions.

- Inspection, examination, and pressure testing practices.
- Frequency and extent of inspection.
- Data evaluation, analysis, and recording.

Unit 2: API 570, Piping Inspection Code Cont'd:

- Repair, alterations, and rerating.
- Inspection of buried piping.
- API RP 574, Inspection Practices for Piping System Components:
- Piping components: piping, tubing, valves, fittings, and flanges.
- Pipe joining methods.
- Inspection planning.
- Inspection procedures and practices.
- Determination of minimum required thickness.
- Recording.
- API RP 578 Material Verification Program for New and Existing Alloy Piping:
- Scope and definitions.
- The extent of verification - new construction, existing piping system, and maintenance systems.
- Inspection planning:
- Inspection procedures and practices.
- Determination of minimum required thickness.
- Recording.
- API RP 578 Material Verification Program for New and Existing Alloy Piping:
- Scope and definitions.
- The extent of verification - new construction, existing piping system, and maintenance systems.

Unit 3: API RP 571, Damage Mechanisms related to process piping, in general:

- Erosion/Erosion-Corrosion.
- Mechanical Fatigue.
- Galvanic Corrosion.
- Atmospheric Corrosion.
- Corrosion Under Insulation CUI.
- Boiler Water Condensate Corrosion.
- Microbiologically Induced Corrosion MIC.
- Soil Corrosion.
- Caustic Corrosion.
- Sulfidation.
- Chloride Stress Corrosion Cracking CI-SCC.
- Caustic Stress Corrosion Cracking Caustic Embrittlement.
- Hydrochloric Acid HCl Corrosion.
- Sour Water Corrosion Acidic.
- Amine Stress Corrosion Cracking.

Unit 4: ASME Section 5:

- 1, General Requirements.
- 2, Radiographic Examination.
- 6, Liquid Penetrant Examination.
- 7, Magnetic Particle Examination.
- 9, Visual Examination.
- 10, Leak Testing.

- 23, Section SE-797, Ultrasonic Standards.
- ASME Section 9:
- 1, Welding General Requirements.
- 2, Welding Procedure Qualifications.
- Article 3, Welding Performance Qualifications.
- Article 4, Welding Data.

Unit 5: API RP 577, Welding Inspection, and Metallurgy:

- Definitions.
- Welding inspection, processes, procedures, materials.
- Welder qualifications.
- Non-destructive examination.
- Metallurgy.
- Refinery and Petrochemical Plant Welding Issues.