



## **API– 570 Piping Inspector Preparatory Course, 2015**

**Duration: 5 days**

### **INTRODUCTION:**

Process piping system is one of the critical production assets in process industry. Organizations recognize the need to maintain authorized inspection agency and technically assess qualified piping engineers and inspectors to ensure facilities are at top performance. Therefore, API 570 certification is one of the most sought after professional competency that enables inspectors to be actively involved in the improvement of industry & environmental health and safety performance, reinforcement management control, compliance of inspection capabilities.

This 5 day Piping Inspector course is based on API 570/574, API RP 577/578, ASME B16.5/ B31.3 and ASME BPVC Section V/ Section IX. It is to promote the recognition of fitness-for-service concepts to evaluate in-service degradation of piping system. This course gives a broad knowledge about “In-Service Piping Systems” and prepares students for the API 570 exam. The course is an intensive one-week course with a special emphasis on the use of the related codes and calculations.

### **COURSE OBJECTIVES:**

The course provides participants with the knowledge regarding the following topics:-

- **API 570:** Inspection methodologies, remaining life calculations, degradation mechanisms, repair & re-rating of in-service piping system and relations to ASME codes.
- **ASME Section V:** Principles and application of Non-Destructive Examination.
- **ASME section IX:** Welding & brazing requirements and procedures .
- **ASME B31.3:** Design review, welding & heat treatment, inspection, leak testing of process piping.
- **ASME B16.5:** Design & repair of pipe flanges and flanged fittings.
- **API RP 571:** Damage Mechanisms affecting fixed equipment in refineries, eg. fractures, fatigue, corrosion, sulfidation, MIC, HTTA etc.
- **API 574:** Inspection practices for piping system components.
- **API RP 577:** Welding inspection and metallurgy recommended practices.
- **API RP 578:** Material verification program for new and existing alloy piping systems.

### **WHO SHOULD ATTEND?**

This course will specifically benefit **Engineers, Supervisors, and Managers** from the following disciplines:

- **Mechanical Engineering**
- **Inspection**
- **Maintenance & Operations**
- **Technical & Engineering**
- **QAQC**

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and technical personnel with 2-3 years of experience in the management and planning of inspection and maintenance activities of piping system at upstream oil & gas facilities, refineries, process plants and petrochemical facilities.

## **COURSE CONTENTS**

### **API 570 Piping Inspection Code**

#### **Modules:**

- (1) Inspection
- (2) Repair
- (3) Alteration & Rerating of In-Service Piping Systems

### **API 571 Damage Mechanisms affecting fixed equipment in the refinery industry**

#### **Modules:**

- (1) Brittle Fracture
- (2) Thermal Fatigue
- (3) Erosion/Erosion Corrosion
- (4) Mechanical fatigue
- (5) Vibration-Induced Fatigue
- (6) Atmospheric Corrosion
- (7) Corrosion under Insulation (CUI)
- (8) Boiler Water Condensate Corrosion
- (9) Flue Gas Dew Point Corrosion
- (10) Microbiological Induced Corrosion(MIC)
- (11) Soil Corrosion
- (12) Sulfidation
- (13) Chloride Stress Corrosion Cracking (CI- SCC)
- (14) Caustic Stress Corrosion Cracking (Caustic Embrittlement)
- (15) High Temperature Hydrogen Attack (HTTA)

### **API 574 (Inspection Practices for Piping System Components)**

#### **Modules:**

- (1) Piping Components
- (2) Pipe-joining Methods
- (3) Reasons for Inspection
- (4) Inspection Plans
- (5) Frequency and Extent of Inspection

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- (6) Safety Precautions and Preparatory Work
- (7) Inspection Procedures and Practices
- (8) Determination of Minimum Required Thickness
- (9) Records

### **API 577 (Welding Inspection and Metallurgy)**

#### **Modules:**

- (1)Welding Inspection
- (2) Welding Processes
- (3)Welding Procedure
- (4)Welding Materials
- (5)Welder Qualification
- (6)NDE

### **API 578 (Material Verification Program for New and Existing Alloy Piping Systems)**

#### **Modules:**

- (1) Material Verification Program Test Methods
- (2) Evaluation of PMI Test Results
- (3) Marking and Recordkeeping

### **American Society of Mechanical Engineers (ASME)-Boiler and Pressure Vessel Code**

#### **Modules:**

- (1) ASME Section V-Articles 1,2,6,7,9,10 and 23(Section SE-797 Only)
- (2) ASME Section IX-Welding Only

### **American Society of Mechanical Engineers (ASME)**

#### **Modules:**

- (1)B16.5-Pipes and Flanged Fittings
- (2) B13.3-Process Piping

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