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BATEN RABAH
Consultation,
Training, Contracting
& Evaluation Training
Pogramme

Enhanced Training Program: Inspection of Pressure Equipment (APV & APG) According to Algerian Regulations & API 572

Course Duration: 5–7 Days

Target Audience:

Engineers and technicians responsible for pressure equipment
Inspectors in the oil & gas, refining, and petrochemical industries
Maintenance and safety personnel
Regulatory compliance officers
Course Objectives
This course provides an in-depth understanding of the inspection, maintenance, and regulatory compliance of pressure equipment (APV & APG) in Algeria. It integrates API 572 standards with Décret exécutif n° 21-261 du 13 juin 2021, ensuring that participants acquire both regulatory knowledge and practical inspection skills.

MODULE 1: INTRODUCTION TO PRESSURE EQUIPMENT INSPECTION

Overview of Algerian Regulations & API 572
Algerian Legal Framework (Décret n° 21-261)

Roles of ARH (Autorité de Régulation des Hydrocarbures)
Responsibilities of fabricants, exploitants, and inspecteurs
Legal requirements for ESP (Equipements Sous Pression)
Consequences of non-compliance (penalties, shutdowns, safety risks)
API 572 Introduction & Its Role in Inspection

API 510, API 571, API 579 & ASME Integration
Why API 572 is a key standard for pressure vessel inspection
Comparing API 572 and Algerian regulations

MODULE 2: DESIGN & MANUFACTURING REQUIREMENTS

Engineering Standards & API 572 Recommendations
Design Considerations for Pressure Vessels (API 572 + Algerian Law)

Materials & Construction Codes (API 572, ASME VIII, ASME IX)
Fabrication Methods (welding, forming, heat treatment)
Calculation of MAWP (Maximum Allowable Working Pressure)
Allowable stress & PMA (Pression Maximale Admissible)
Common Defects in Pressure Vessels

API 572 guidance on corrosion, fatigue, creep, erosion
How materials degrade over time and their impact on vessel integrity
Identifying high-risk areas

MODULE 3: INSPECTION METHODOLOGIES (API 572 + ALGERIA)

Practical Pressure Vessel Inspection Process
Internal vs. External Inspections (API 572 Section 5)

When to perform internal vs. external inspections
Algerian law requirements for periodic inspection (Article 38)
API 572 best practices: Frequency, methods & reporting
Pre-Inspection Planning

Reviewing historical records, risk assessments, and P&IDs
Inspection Test Plan (ITP) development (API 572 + ARH rules)
Importance of pre-shutdown inspection planning
On-Site Inspection Techniques

Visual Inspection (VT)
Ultrasonic Testing (UT) & Thickness Gauging
Radiographic Testing (RT)
Magnetic Particle Testing (MT) & Dye Penetrant Testing (PT)
Eddy Current Testing (ECT) for heat exchanger tubes
Acoustic Emission Testing (AET)
Pressure Testing Requirements

Hydrostatic vs. Pneumatic testing (API 572 vs. Algerian law)
Leak detection & pressure hold requirements
Test pressure calculations & safety considerations

MODULE 4: FAILURE MECHANISMS & DAMAGE ASSESSMENT

Understanding Pressure Vessel Degradation
API 571 Damage Mechanisms Overview

Corrosion (general, localized, pitting, galvanic, H2S)
High-Temperature Hydrogen Attack (HTHA)
Creep & embrittlement
Fatigue cracking & thermal stress failures
Stress corrosion cracking (SCC)
Overpressure incidents & rupture failures
How to Detect & Evaluate Damage

NDT vs. Destructive Testing (DT)
Using API 579-1/ASME FFS-1 for Fitness-for-Service (FFS)
Risk-Based Inspection (RBI) approach vs. scheduled inspections

MODULE 5: REGULATORY COMPLIANCE & DOCUMENTATION

Meeting Algerian & International Compliance
Algerian Inspection Requirements (Article 33-41)

API 572 vs. Algerian periodic inspection requirements
How to develop an Inspection & Testing Plan (ITP)
Responsibilities of Organismes Tiers Habilités
Preparing Inspection Reports

API 572 recommended formats for inspection reports
Algerian dossier final & regulatory approval process
ARH's role in approving inspection & requalification reports

MODULE 6: IN-SERVICE INSPECTIONS & REQUALIFICATION

Inspection Intervals & Best Practices
Periodic Inspections: Frequency & Scope

API 572 vs. Algerian law (Article 38-43)
Recommended intervals for APV, APG, heat exchangers, piping
Requalification inspections every 5–10 years (Article 43)
Requalification Testing & Renewal

Pressure Testing (Hydrostatic & Pneumatic)
Special considerations for high-pressure vessels & steam boilers
Role of witness inspectors & third-party approvals
Shutdown & Turnaround Inspections

Best practices for managing vessel shutdowns & overhauls
Using API 510 guidelines for pressure vessel repair & rerating

MODULE 7: PRACTICAL HANDS-ON TRAINING

Field Inspection Workshop
Practical Inspection Exercise (Real Pressure Vessel)

Hands-on Visual Inspection (VT)
Ultrasonic Thickness Gauging (UT)
Dye Penetrant & Magnetic Particle Testing (PT/MT)
Pressure Testing Demonstration
Case study: API 572 inspection checklist application
Review of Real Failure Cases in Algeria

Common failures & regulatory non-compliance cases
Lessons learned from past pressure vessel accidents
How to improve safety & prevent failures
FINAL EXAM & CERTIFICATION
Written & Practical Exam (based on API 572 & Algerian law)
Certification as a Pressure Vessel Inspector (APV/APG) – Algeria
ARH-approved Regulatory Inspection Compliance Certificate
Why This Training is Superior
✓ Comprehensive: Covers Algerian regulations + API 572 best practices
✓ Practical: Hands-on inspection training on real equipment
✓ Industry-Recognized: Aligned with API, ASME, and ARH standards
✓ Regulatory Compliance: Prepares inspectors to meet legal & ARH requirements