MERCURY

API 653: Tank Inspection, Repair, Alteration, and Reconstruction Course

19 – 23 September 2027
Amman (Jordan)



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Ref: 15421_307311 **Date:** 19 – 23 September 2027 **Location:** Amman (Jordan) **Fees:** 4200 Euro

Introduction:

The API 653 tank inspection, repair, alteration, and reconstruction certification preparation course is designed to provide individuals with a solid understanding and proficiency in inspecting, repairing, altering, and reconstructing aboveground storage tanks. It emphasizes engineering principles and practices.

This API 653 tank inspection, repair, alteration, and reconstruction course encompasses comprehensive knowledge of in-service storage tanks as reflected in the API standards. Participants will delve into the critical components of the API 653 regulations, mastering how to interpret technical rulings and ensuring confident and informed decision-making in their professional roles.

The API 653 tank inspection, repair, alteration, and reconstruction certification elevates the professional standing of inspectors and engineers who work with storage tanks. It signals a comprehensive understanding of API standards for inspecting, repairing, altering, and reconstructing aboveground storage tanks, termed API 653 tanks.

This API 653 tank inspection, repair, alteration, and reconstruction training course is systematically structured as an API 653 study guide. It provides in-depth coverage of API standard 653 regulations and practices and extensive insights into tank inspection, repair, and maintenance, strongly focusing on API inspection and repair methodologies.

Participants in this API 653 tank inspection, repair, alteration, and reconstruction training will learn about the API 653 tank inspection frequency, guidelines for maintaining the integrity of storage tanks, and best industry practices, assuring that all operations comply with the API standard 653 tank inspection repair alteration and reconstruction requirements.

Targeted Groups:

- Storage Tank Inspectors and Engineers.
- Plant Inspectors.
- Inspection and Corrosion Engineers.
- Process Engineers.
- Inspection Engineers for Newly constructed and reconstructed tanks.
- QA/QC inspectors.
- Maintenance and Mechanical Engineers.
- Inspection Testing Engineers.
- Fabrication Engineers.

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Course Objectives:

Upon completion of this API 653 tank inspection, repair, alteration, and reconstruction course, participants will be able to:

- Identify the API 653 content, including Scopes, Suitability for Service, evaluation of the tank Shell, minimal accepted thickness, and the maximum allowable fill Height.
- Evaluate the tank bottom, encompassing settlement and Release Prevention Systems RPS.
- Recognize inspection imperatives and Causes of Deterioration.
- Determine the requirements for Cathodic Protection and the Methods of its application.
- Implement post-weld heat treatment procedures and comprehend the significance of Charpy impact testing.
- Analyze welding discontinuities and discuss ASME section IX, including WPS, WPQ, and PQR.

Targeted Competencies:

Target competencies in this API 653 tank inspection, repair, alteration, and reconstruction training will:

- In-depth understanding of API 653 standards and regulations.
- Proficiency in tank inspection techniques and procedures.
- Know repair methodologies for storage tanks.
- Skills in performing alterations and modifications on tanks.
- Competence in tank reconstruction practices.
- Ability to assess and ensure tank integrity and safety.
- Expertise in corrosion detection and prevention.
- Familiarity with welding and welding inspection requirements.
- Understand nondestructive testing NDT methods.
- Capability to develop and implement inspection plans.
- Know documentation and record-keeping for tank maintenance.
- Skills in risk-based inspection RBI and fitness-for-service FFS evaluations.
- Proficiency in regulatory compliance and reporting.
- Ability to work with engineering drawings and specifications.
- Understand environmental and safety considerations in tank operations.

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Course Content:

Unit 1: Introduction and Review of API 653 Body of Knowledge:

- API 653 Scope Coverage, Definitions, and Suitability for Service.
- Tank Shell Evaluation and Thickness Calculation for Welded Tanks.
- Maximum Allowable Fill Height Calculation.
- Tank Bottom Evaluation and Release Prevention Systems RPS.
- Minimum Thickness for the bottom and annular Plate Ring.
- Tank Foundation Evaluation.
- Brittle Fracture Considerations.
- External and Internal Inspection and Ultrasonic Thickness Inspection.
- Design Considerations for Reconstructed Tanks.
- Tank Repair and Alteration.

Unit 2: API 653 Tank Dismantling and Reconstruction:

- Welding and Examination Testing requirements for tanks.
- Evaluation of Tank Bottom Settlement.
- Coverage of API 650 scope.
- General Material Requirements.
- Tank Joints Design.
- Tank Fabrication and Welding.
- Tanks Inspection, Testing, and Repairs.
- Methods of Inspecting Joints.

Unit 3: API 575 Scope and Definitions:

- Different Types of Storage Tanks.
- Reasons for Inspection and Causes of Deterioration.
- Inspection Methods and Scheduling.
- API 651 Scope and Definitions.
- Corrosion of Aboveground Steel Storage Tanks.
- Determining the Need for Cathodic Protection and its Methods.
- Designing Cathodic Protection Systems.
- API 652 Scope and Definitions.
- Surface Preparation and Lining Application.
- Recommended Inspection Parameters.

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Unit 4: ASME IX Welding Procedure Qualifications WPS & WPQ & PQR:

- Various Welding Processes.
- Welding Essential, Non-essential, and Supplementary Essential Variables.
- P-Numbers and S-Numbers, F-number and A-number.
- Welders Test Positions, including Diameter and Thickness Qualification and Position Qualification.
- Alternate F-Numbers and Alternate P-Numbers.
- Addressing Damage Mechanisms Affecting Fixed Equipment in the Refining Industry according to API 571.

Unit 5: Continue API 571 Damage Mechanisms Affecting Fixed Equipment in the Refining Industry:

- Insight on Welding Inspection and Metallurgy per API 577.
- In-depth understanding of Hot Tapping and In-Service Welding.
- ASME Section V - Nondestructive Test Methods.
- Radiographic, Liquid Penetrant, and Magnetic Particle.