API 653 – Aboveground Storage Tanks Inspection Program

13 – 24 September 2027
Kuala Lumpur (Malaysia)



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Introduction

The API 653 - Aboveground Storage Tanks Inspection Program is a specialized professional training course designed to provide a structured and practical understanding of inspection requirements for aboveground storage tanks.

This program focuses on the technical framework used to assess the integrity, safety, and reliability of storage tanks that play a critical role in industrial operations.

It is tailored for professionals who are responsible for asset integrity, operational continuity, and risk management within their organizations.

The course content is suitable for early- and mid-career professionals seeking to strengthen their technical foundation, as well as supervisors and managers involved in inspection planning and decision-making.

Through a clear and systematic approach, the program explains inspection principles, acceptance criteria, and evaluation methods in a way that supports practical application.

The overall aim is to improve inspection quality, reduce operational risks, and support informed technical decisions.

Course Objectives

This program aims to equip participants with practical knowledge and structured skills aligned with the API 653 inspection framework.

By the end of the course, participants will be able to:

- Understand the scope and structure of the API 653 standard.
- Identify key safety requirements related to tank inspection activities.
- Apply inspection methods for aboveground storage tanks.
- Analyze common corrosion mechanisms and damage patterns.
- Select appropriate inspection techniques based on operating conditions.
- Interpret inspection data accurately and consistently.
- Link inspection results to maintenance and repair decisions.
- Support compliance and reduce operational uncertainty.



Course Outlines

Day One: Introduction to API 653

- Definition and classification of aboveground storage tanks.
- Scope and applicability of the inspection standard.
- Key terminology used in tank inspection.
- Roles and responsibilities of inspection personnel.
- Relationship between inspection and operational safety.
- Overview of the tank life cycle.

Day Two: Tank Design and Components

- Main structural components of storage tanks.
- Types of roofs, shells, and bottoms.
- Impact of design on inspection planning.
- Common design-related weaknesses.
- Reading and understanding tank drawings.
- Linking design features to operating conditions.

Day Three: Corrosion and Damage Mechanisms

- Fundamentals of corrosion in storage tanks.
- Internal and external corrosion types.
- Influence of stored products on degradation.
- Common structural defects.
- Early indicators of damage.
- Integrating corrosion knowledge into inspection planning.

Day Four: External and Internal Inspection

- Requirements for routine external inspections.
- Conditions for safe internal inspections.
- Visual inspection principles.
- Recording and classifying inspection findings.
- Initial assessment of inspection results.
- Decision-making based on observed conditions.



Day Five: Inspection and Measurement Techniques

- Principles of ultrasonic thickness measurement.
- Use of inspection and measuring tools.
- Accuracy and limitations of inspection methods.
- Selecting suitable techniques for specific conditions.
- Interpreting measurement results.
- Organizing and storing inspection data.

Day Six: Tank Bottoms and Foundations

- Importance of tank bottom inspection.
- Typical bottom corrosion patterns.
- Foundation condition assessment.
- Effects of soil and moisture.
- Detection methods for underside corrosion.
- Linking findings to corrective actions.

Day Seven: Calculations and Remaining Life

- Determining remaining wall thickness.
- Corrosion rate calculation methods.
- Estimating remaining service life.
- Using calculations for maintenance planning.
- Defining safe operating limits.
- Reviewing calculation assumptions.

Day Eight: Repairs and Acceptance Criteria

- Permitted repair methods.
- Repair execution requirements.
- Acceptance criteria after repair.
- Evaluating repair quality.
- Conditions requiring tank replacement.
- Documentation of repair activities.

Day Nine: Inspection Reporting and Documentation

- Structure of an inspection report.
- Organizing technical inspection data.
- Recording critical findings.
- Using reports to support management decisions.
- Long-term recordkeeping requirements.
- Reviewing historical inspection data.



Day Ten: Risk Management and Integration

- Principles of risk management for storage tanks.
- Risk classification and prioritization.
- Integrating inspection results with maintenance plans.
- Supporting operational continuity.
- Reducing failure probability.
- Comprehensive review of course content.

Why Attend This Course: Wins & Losses!

- Clear understanding of API 653 inspection requirements.
- Improved technical decision-making skills.
- Reduced operational and integrity risks.
- Better alignment with inspection standards.
- Enhanced asset integrity management.
- Practical analytical skill development.
- Improved quality of inspection reports.
- Strong linkage between inspection and maintenance.

Conclusion

The API 653 - Aboveground Storage Tanks Inspection Program provides a structured and practical foundation for understanding tank inspection requirements. It addresses technical, procedural, and documentation aspects necessary for effective inspection activities. The program supports informed decision-making by linking inspection results to maintenance and operational planning.

Its progressive structure is designed for professionals with a moderate level of experience, emphasizing clarity and real-world applicability. Overall, this program serves as a solid professional reference for those involved in the inspection and integrity management of aboveground storage tanks.

