Introduction To Maintenance Of Aboveground Atmospheric Storage Tanks (API 653)

Introduction:

API 653, Tank Inspection, Tank Repair, Tank Alteration and Tank Reconstruction, was first published by the American Petroleum Institute (API) in January, 1991. Its scope encompasses the maintenance, inspection, repair, alteration, relocation and reconstruction of existing, above ground, atmospheric storage tanks constructed per API 650, or its predecessor API 12C. If API 653 is intended to cover existing storage tanks, why should it be considered in the design of new storage tanks? For one simple reason: Ignoring API 653 when developing the design requirements for a new storage tank could result in operating or maintenance penalties later.

API 650 requires a minimum bottom plate thickness of 0.25 in. It does not mandate an internal lining, cathodic protection system, nor secondary containment and leak detection system. An owner wants to maximize the required interval between internal inspections, typically targeting for 10 years. The owner will typically be able to estimate anticipated corrosion rates for both the liquid and soil sides of the tank based on past experience. The question that must be answered is whether a standard API 650 tank design is acceptable, considering API 653 requirements and the owner's maintenance, inspection planning and operational requirements.

Who Should Attend?

Engineers, Supervisors, Inspectors, Maintenance Personnel and individuals who have engineering, inspection, maintenance and management responsibility related to aboveground atmospheric storage tanks that store hydrocarbon liquids

Course Objectives:

By the end of this course delegates will be able to:

- Gain an overall understanding of the maintenance requirements of aboveground atmospheric storage tanks in accordance with API-653

Course Outline:

Introduction to API-653

- Scope of API-653
- Definitions
- Starting an API-653 Compliance Program
- Cost of an API-653 Compliance Program

Tank Inspection

- Objectives
- Prioritization
- Inspection Frequencies
- Record Keeping
- Inspector Qualification

Tank Component Evaluation

- Shell
- Bottom
- Nozzles
- Roof
- Foundation
- Shell and Bottom Settlement

Leak Detection Methods

Tank Repair and Alteration

- General Considerations
- Material Considerations
- General Requirements for Repair and Alteration
- Removal, Repair and Replacement of Shell Plate Material
- Repair, Addition, Replacement and Alteration of Shell Penetrations
- Repair of Tank Bottoms
- Tank Roof Repair

Dismantling and Reconstruction

- Dismantling Methods
- Reconstruction
- Dimensional Tolerances

Examination and Testing

- General
- Welding Inspection
- Hydrostatic Testing