



API– 653 Above Ground Storage Inspector Certified Preparatory Course, 2015

Duration: 5 days

INTRODUCTION:

This 5 days training course is designed to give a detailed discussion on the required engineering knowledge for In-service Storage tanks with emphasis on syllabus published by API (Body of Knowledge) for the said examination. It includes all the code sections referred by API 653 committee to the extent required from examination point of view This preparatory course will clarify basic intentions of all code prescribed for study, how to interpret code rulings and at the end, built-up the confidence among the participants for taking decisions. The course is divided into six main areas: Basic Storage tank design engineering i.e. API 650, In-service inspection techniques (API 653/ RP 575/ RP 577), In-service degradation mechanisms (API 571), Cathodic protection (API RP 651) and lining of tank bottom (API RP 652), calculations of retirement thickness and other skills required for delivery of quality job & safe operation. The participants will receive comprehensive course notes, illustrated with practical examples, Mock-examinations, main punch-points of the course and extensive question banks to give the participants the confidence for getting certified successfully.

COURSE OBJECTIVES:

The course provides participants with the knowledge necessary to:

- To familiarize participants with the main concepts and technical content of API 653 Code and the other reference codes prescribed for Certification Examination.
- To introduce participants to the concept of metal degradation.
- To explain to participants the design fundamentals of storage tank (API 650).
- To introduce participants to evaluation of tank integrity of shell, bottom and roof .Thickness calculations for intended design conditions or revised design conditions.
- To clarify the need of Cathodic Protection and lining of tank bottom.
- To Evaluate and decide remedial action for Tank settlement.
- To explain to participants how to estimate remaining life of tank and decide inspection intervals. Be able to choose the appropriate inspection tools and inspection intervals.
- To carry out re-rating, remaining life and retirement thickness calculations.
- To Score very well in API 653 examination.

WHO SHOULD ATTEND?

Tank inspection engineers, Managers, Inspection personnel, Plant operations engineers and others, who wish to appear for API 653 examination. All Maintenance engineers, Inspectors, Corrosion engineers and Design persons involved in integrity assessment of in-service tanks, Repairs and Replacement of old tanks, and preventive maintenance of storage tanks will find the course immensely beneficial.

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COURSE CONTENTS

Fundamentals of Storage Tank Design & construction (API 650) –

- Allowable stress values Shell design
- Roof design
- Bottom Design.
- Material selection
- Impact test requirement of API 650
- Impact test results
- Shell thickness calculations
- Bottom plate thickness, Roof plates, nozzle openings.
- API 650 Requirements for Tank fabrication, erection, NDT and Leak testing.

Understanding of Storage Tank Inspection Code (API 653) –

- Introduction.
- Scope & Definitions and Organisation of API 653.
- Inspection Intervals and scope of inspections.
- Data evaluation and corrosion assessment of Roof, Shell, and bottom.
- Estimation of corrosion rate, Inspection and testing practices of API 653 Evaluation for brittle failure.
- Various preventive actions against degradation
- Frequency and extent of inspection, data evaluation.

Understanding of Storage Tank Inspection Code (API 653)...Contd –

- Repairs, alterations & reconstruction of storage tanks.
- Tank relocation and re-erection.
- Replacement of tank bottom.
- Hot tapping on tank shell.
- Detail discussions on material corrosion and degradation (API 571).
- NDT of tank repairs.
- Leak testing..
- Evaluation of bottom settlement.

Storage tank Inspection (studyof other codes and standards) –

- Discussions on cathodic protection methods against soil corrosion (API RP 651)
- Recommended practices for inspection of storage tanks (API RP 575)
- Discussions on Lining of bottoms of storage tanks (API RP 652)
- Introduction to ASME Sec IX and its various provisions
- Welding procedure qualification & welder qualification,
- Case studies of checking of PQR & WPS

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Discussions on Corrosion Protection & Quality of Welding –

- Discussions on Lining of bottoms of storage tanks (API RP 652).
- Discussions on API RP 577, welding inspection.
- Understanding the difference between Inspection and Examination.
- Various NDE methods to detect flaws in metals.
- Understanding rules imposed by ASME Sec V for various NDE techniques.

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