

ABOVEGROUND STORAGE TANK INSPECTOR

MCE062

COURSE DESCRIPTION

This 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). It 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.

COURSE GOAL

To enhance the participants' knowledge, skills and abilities necessary to build-up their confidence for taking decisions for In-service Storage tanks.

COURSE OBJECTIVES

By the end of this course, participant will be able to:

- Be familiar with the main concepts and technical content of API 653 Code and the other reference codes.
- Understand the concept of metal degradation.
- Understand the design fundamentals of storage tank (API 650).
- Evaluate tank integrity of shell, bottom and roof.
- Perform thickness calculations for intended design conditions or revised design conditions.
- Understand the need of Cathodic Protection and lining of tank bottom.
- Evaluate and decide remedial action for tank settlement.
- Understand how to estimate remaining life of tank and decide inspection intervals.
- Choose the appropriate inspection tools and inspection intervals.
- Carry out re-rating, remaining life and retirement thickness calculations.

WHO SHOULD ATTEND

- Tank inspection engineers, Managers, Inspection personnel, Plant operations engineers.
- All Maintenance engineers, Inspectors, Corrosion engineers and Design persons involved in integrity assessment of in-service tanks, Repairs and Replacement of old tanks.

COURSE DURATION

5 Working Days

COURSE OUTLINES

1. Fundamentals of Storage Tank Design & construction (API 650)

- Allowable stress values Shell design, roof design and bottom design.
- Material selection, impact test requirement of API 650.
- Impact test results Shell thickness calculations and bottom plate thickness.
- Roof plates.
- Nozzle openings.
- API 650 Requirements for Tank fabrication.
- Erection.
- NDT and Leak testing.

2. 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.
- 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.

3. Storage tank Inspection (study of other codes and standards)

- Cathodic protection methods against soil corrosion (API RP 651).
- Recommended practices for inspection of storage tanks (API RP 575).
- Case studies of checking of PQR & WPS.

4. Corrosion Protection & Quality of Welding

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