

Training Title

Storage Tanks: Design Inspection & Testing Training

Training Duration

5 days

Training Dates & Venue

REF MO021	Storage Tanks: Design Inspection & Testing Training	5	27 - 31 January, 2019	\$4,250	Dubai, UAE
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Training will be held at any of the 5 star hotels. Exact venue will be informed once confirmed.

Training Fees

- 4,250 US\$ per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Buffet Lunch

Training Certificate

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

Training Description

Storage Tanks find applications in different petrochemical plants, refineries, and petroleum facilities. This course is designed to cover different aspects of storage tanks, the design, construction, and methods of inspection to assure the integrity of the new constructed tanks. Tank will experience deterioration after been put in service due to different causes. To assure its integrity in service, tank need to be inspected, thickness measurements must be performed and fitness for service must be applied. To prevent and minimize the deterioration the tank must be protected against corrosion using cathodic protection systems. Safety of storage tanks is also of very essential requirements, especially for those containing hazardous type of material. Tanks must be protected from over pressurization using venting and relieving devices, and most important must be protected from fire.

The above topics will be covered in detail over five days. Discussion and participation from the delegates are encouraged to enrich the course outcomes.

WHO SHOULD ATTEND

Engineers, Inspectors and Technicians responsible for building, operating, maintaining, and controlling storage tanks are the most benefit from this course.

TRAINING METHODOLOGY:

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions, and motivate everybody find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

Very useful Course Materials will be given.

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- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussions

COURSE OUTLINE

DAY 1

Design and Construction
Stress and pressure terms
Tank wall thickness
Material, plates
Design parameters
Operating temperature
Design pressure
Maximum allowable stress for walls
Corrosion allowance
Lining
Procedure for designing
Tank walls
Roofs and Bottoms
Reinforcement of openings

DAY 2

Inspection and Testing
Inspection of Materials
Measuring thickness of materials
Inspection of Welds (radiographic method)
Hydrostatic and Pneumatic tests
Proof tests for establishing allowable working pressures
Test gauges
Pressure and vacuum-relieving devices
Pressure limits
Means of venting
Liquid relief valves
Pressure setting of safety devices

DAY 3

Corrosion Protection
Corrosion Protection of above ground storage tanks
Corrosion mechanisms
Stray current corrosion
Galvanic corrosion
Internal corrosion

Cathodic Protection
Need for CP
New aboveground storage tanks
Existing aboveground storage tanks

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Internal CP vs. External CP
Factors affecting CP
Methods of Cathodic Protection
Galvanic systems
Impressed current systems
Design of CP systems
Internal Cathodic protection system
External Cathodic protection system
Operation and maintenance of CP systems

DAY 4

Storage Tanks Fitness-for-Service
Suitability for service
Tank roof evaluation
Tank shell evaluation
Tank bottom evaluation
Tank foundation evaluation
Brittle fracture consideration
Assessment procedure
Inspection
Inspection frequency
External inspection
Internal inspection
Determining bottom thickness
Non-destructive examinations
Tank repair and Alteration
Removal and replacement of shell plate material
Lap-welded patch plates
Repair of defective welds
Repair of shell penetrations
Repair tank bottoms
Repair of fixed roofs
Repair of floating roofs
Repair of floating roof seals

DAY 5

Safety and fire protection
Fire prevention
Vapor control
Control of ignition sources
Tank overfill protection
Inspection and maintenance programs
Fire extinguishment and control
Controlled burn
Extinguishing systems for tanks
Aboveground petroleum storage tanks
Release prevention, leak detection, and air emissions
Tank calibration
Coating and protection systems

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Tank alarms
Underground storage tank
Vapor emissions

NOTE:

Pre & Post Tests will be conducted

Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.

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