

Training Title

STORAGE TANKS: DESIGN INSPECTION & TESTING

Training Duration

5 days

Training Dates & Venue

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| REF MO021 | Storage Tanks: Design Inspection & Testing | 5 | 26 - 30 January, 2020 | \$4,500 | 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

- 4,500 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 OVERVIEW

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:

DMCT/OL/9/18(Rev3Dt:23/9/18)

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.

- 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

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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

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

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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
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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