



Fundamentals Of Storage Tank Design, Construction & Maintenance



Introduction:

The success of every company depends of each employee's understanding of the key business components. Employee training and development will unlock the companies' profitability and reliability. When people, processes and technology work together as a team developing practical solutions, companies can maximize profitability and assets in a sustainable manner. It is important that your maintenance team understands the fundamentals of process tank design and operations concepts. This course conforms to **API Standards 620, 650 & 653**.

Whether you have a team of new or seasoned employees, an introduction or review of these concepts is very beneficial in closing the gap if you are not in the best quartile, or maintaining a leadership position. Most studies show that a continuous reinforcement of best practices in operational principles is the most effective way to obtain the desired results. Training and learning should be an ongoing continuous lifelong goal. This course will guide the candidates to develop key concepts and techniques to operate, repair and troubleshoot Storage Tank Systems. These key concepts can be utilized to make decisions that can improve your unit's performance.

You will cover the following topics:

- Overview of the Storage Tank System
- Design Evaluation Techniques
- An understanding of tank and stored product interaction
- An understanding of essential tanking concepts
- Valuable practical insights for trouble free design and field proven techniques for commissioning, start up and shutdown of storage system operations
- How to tailor your approach to specific design, analysis and troubleshooting problems

Who Should Attend?

First Line Operations personnel, Operation Supervisors, First Line Maintenance personnel, Maintenance Supervisors, Senior Plant Supervisors, Construction Engineers, Operations Engineers, Process Support Engineers, Design Engineers, Cost Engineers, those who are making day to day decisions regarding operation, design, maintenance and economics of processing plants

Course Objectives:

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

- Gain an appreciation of the fundamentals design requirements for new storage tanks
- Understand the various techniques available for safe site build and achieving quality assured standard for the construction of storage tanks
- Consider maintenance strategies for the inspection, assessment repair and maintenance of storage tanks

Course Outline:

- Introduction to the Process Industry
- Safety for the Process Industry Storage Systems

- Introduction to Storage Systems
- History of Storage Systems
- Review of Tanks Codes
- Review of International Construction code Requirements
 - API Standard 620
 - API Standard 650
 - API Standard 653
- Foundation and Tank Floor Design
- Tank Roof Design
- Frangible Roof
- Tank Shell Design
- Wind Girder Requirements
- Fixed Roof Tanks
- Basic Design
 - Leak Prevention
 - Leak Detection
 - Secondary Containment
- Construction
- Maintenance
- Floating Roof Tanks
- Basic Design
 - Leak Prevention
 - Leak Detection
 - Secondary Containment
- Tanks Seals
- Construction

- Maintenance
- Tank Corrosion Mitigation
 - Causes of Corrosion
 - Tank Floor Corrosion
 - Lining Systems
 - Sulphur Corrosion
- Tank Erection Methods
- Tank Jacking
- Inspection of Storage Tanks
- Non Destructive Testing of Storage Tanks
- Sludge Control Guidelines
- Storage Tank Maintenance Guidelines
- Tanks Floor Inspection
- Tank Floor Repair and Repair and Replacement
- Tank Repair Guidelines
- Storage Tank Safety
- Fire Fighting Guidelines
- Preparing for Personnel Entry
- Auxiliary Equipment
- Pumps
- Control Valves
- Heaters & Heat Exchangers
- Tank Shell Repair and Replacement
- Tank Roof Repairs
- Floating Roof Repairs