



Tank & Tank Farms:

Design, Operation, Instrumentation, Inspection & Maintenance



TRAINING METHODOLOGY

This interactive training workshop includes the following training methodologies as a percentage of total tuition hours:-

50%	Lectures
30%	Workshops, Group Work & Practical Exercises
20%	Videos & Software

TO REGISTER CALL NOW!

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VISIT: www.worldwidetank.com.au

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WHO SHOULD ATTEND

- Tank Farm Managers, Engineers, Superintendents, Supervisors, and Operators
- Maintenance Engineers/Planners, Superintendents, Supervisors, NDT Technicians
- Inspectors and Engineers involved with storage tank design, maintenance and inspection



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Course Objectives

Upon the successful completion of this seminar, participants will be able to:-

- Assess the configuration, operation and management practices of tank farms in terms of facility capacity, operational effectiveness, and the cost/benefit of feed, intermediate and product storage
- Appreciate the importance of codes, standards, regulations & recommended practices in terms of hazard management and incident scenario layer of protection safeguarding
- Identify the different types & classifications of tanks and their applications
- Understand considerations of materials-of-construction & various corrosion protection strategies and tactics including cleaning, coating, & cathodic protection
- Become familiar with fire protection of tanks & tank farms: venting, frangible roofs, flame & detonation arrestors, protection from ignition by static electricity, principles & practices of bonding and grounding, principles of inerting, selection criteria for fire suppression systems
- Apply tank emission control measures & procedures to satisfy regulatory requirements
- Understand the principles, preparations, & practices associated with tank cleaning, entry, inspection & repair
- Use a system approach on tank operations including tank entry, tank bottoms, sludge, source reduction, mitigation, vapor freeing, degassing and tank cleaning
- Determine the various tank accessories used in the tank & tank farm design, operation, inspection & maintenance and be able to explain their features & functions
- Computer aided Design and rerating using E-Tank Software – Hands on!



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DAY 1

0730 – 0800 Registration & Coffee
0800 – 0815 Welcome & Introduction
0815 – 0915 Introduction

Tanks & tank farms as part of production & terminal systems

- Tank types & designs
- Tank components
- Tank design & engineering considerations relative to performance parameters, Maximum Allowable Inventory, & physical, chemical & hazardous properties of contained fluids
- Introduction to codes, standards, regulations, & recommended practices

0915- 1015
Planning to AS 1940 Storage & Handling of Flammable & Combustible Liquids and other AS Storage and Handling Codes

1015 - 1030 Break

1030 - 1100
Codes, Standards, Regulations, & Recommended Practices

American Petroleum Association (API)
National Electrical Code (NEC)
National Fire Prevention Association (NFPA)

1100 - 1215
Codes, Standards, Regulations, & Recommended Practices

1215 - 1315 Lunch Break
1315 - 1500
API 650 Construction Code & Data sheets

1500 - 1515 Break
1515 - 1700
API 650 Construction Code & Data sheets

DAY 2

0800 - 0930
API 650 Construction Code & Data sheets (continued from Day 1)

0930 - 0945 Break
0945 - 1230 Tank Foundations

0730 – 0915
Fire Protection Considerations & Practices
General Principles
Venting
Frangible Roofs
Flame and Detonation Arrestors

0915 – 1045 General Tank Design Considerations

1045 – 1100 Break
1100 – 1230 Tank Roofs

- Floating Roofs
- Rim Seals
- Flexible Piping System for Roofs
- Aluminum Dome Roofs
- Fixed Roof Tanks
- Internal Floaters

1230 – 1330 Lunch Break
1330 – 1500 Tank Roofs (Continued)

- Floating Roofs
- Rim Seals
- Flexible Piping System for Roofs
- Aluminum Dome Roofs
- Fixed Roof Tanks
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1500-1515 Break

1515 - 1700 Evaporation Losses



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DAY 3

0800 – 0930 Tank Emissions

Overview of Tank Emissions Concepts
Computing Emissions from Internal and External Floating Roofs

0930 - 0945 Break

0915 – 1045 Tank Emissions (cont'd)

- Emission Estimation Procedures for Fixed-Roof Tanks
- Emissions from Slotted and Un-slotted Guide Poles

1045 – 1100 Break

1100 – 1230

- Tanks Constructed of Other Materials
- Stainless Steel Tanks
- Aluminum Tanks

1230 – 1330 Lunch Break

1130 – 1500

- Tanks Constructed of Other Materials (cont'd)
- Fiberglass-Reinforced Plastic Tanks
- Tanks Constructed of Miscellaneous Materials

1500- 1515 Break

1515 - 1700

Tank Inspection – what we need to do for us & the regulator

DAY 4

0800 – 0930

- Tank Inspection, Repairs and Maintenance
- Industrial Standards
- Intent of API Standard 653
- How does API 653 Prevent Tank Failures?
- Responsibility and Compliance
- How Long Will It Take to Implement the API 653 Program?

0930 - 0945 Break

0945 – 1230

- Tank Inspection, Repairs and Maintenance (cont'd)
- API 653 and Costs
- In-House versus Contract Inspection
- Thoroughness of Inspection
- Getting Started

1230 – 1330

Lunch Break

1330 – 1515

- Tank Settlement
- Settlement and Tank Failure Mechanics
- Different Kinds of Settlement
- Sloped Bottoms
- Edge Settlement

1515 – 11530

Break

1530 – 1700

- Tank Settlement (cont'd)
- Designing for Settlement
- Releveling Tanks
- Methods of Releveling



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DAY 5

0800 – 0845

- Tank Operations
- Tank Entry Standard
- Basic Requirements of API 2015
- Overview of Tank Bottoms and Sludge

0845 - 0915 Tank Floor maintenance

0915 - 0930 NDT Techniques overview

0930 - 0945 Break

0945 - 1030

- Coatings and linings, Cathodic protection

1030 - 1230

- Tank Accessories
- Ladders, Platforms,
- Stairs and Accessways
- Miscellaneous Tank Appurtenances

1230 – 1330 Lunch Break

1400 – 1415

- Design and Re-rating Software
- E-tank 2000 Hands on running of the Software – You will take away the Demo Program which will design or re-rate three different sizes of tanks and the instruction manual

1645 – 1700 Presentation of Certificates

End of Seminar

Dress Code:

Smart casual wear is suggested along with a sweater or jacket in case the conference room is cool.

Payment Terms:

Payment must be made prior to the event or admittance will not be permitted. A tax invoice and confirmation letter will be emailed to the attendee upon completion of a valid registration. Payment may be made by EFT, cheque or credit card.