

# Tank Farm Operations and Performance

## INTRODUCTION

- The effective management and operation of an oil and gas terminal is essential for a successful business. The processing, transporting and storing of crude oil and refined petroleum products, in tank farms, involves custody transfers of partner and commingled stock, significant volumes of data from various sources and blending operations complexities. In addition, as these liquids are loaded and offloaded in bulk quantities, there is a large transfer of high value that makes it imperative for tank farm operators to efficiently manage their inventory and maximize their return on investment.
- This Tank Farm Operations and Performance training seminar provides an overview of the American Petroleum Institute API-650, API 620 and API 2610 specifications as well as the API 653 inspection standard. Emphasis is also given both as to safety as well as operability of tank farms and the training includes Seveso III Directive real life example reports, how they were carried out and implemented.
- Upon successful completion of this Oil & Gas Technology training seminar, participants will gain knowledge on oil terminals and tank farms, methods of tank gauging, crude oil product specifications, product blending and tank mixing, dealing with oil spill emergencies, cleaning of crude oil and heavy product tanks, understanding and employ a work permit system, pigging operations of oil pipelines, quality assurance and control, contingency and safety procedures.

Topics discussed will include:

- Crude Oil and Product Properties & Handling
- Identify the Different Types of Tank, Troubleshoot, Review and Improve the Operation of a Tank Farm
- Tank Gauging Techniques, Custody Transfer and Fiscal Metering Methods
- Tank Design Standards Codes and Regulations
- Terminal Planning and Scheduling
- Management & Operations
- Identification of Different Types of Tank
- Troubleshooting, Review and Improvement of Tank Farm Operations
- Security & Safety and other Essential Topics related to Import / Export of Oil & Liquefied Gas

## OBJECTIVES

- The tank farm's mission is to perform its daily operations while maintaining a safe storage terminal.
- Attendance of this five days training seminar will ensure:
- In-depth knowledge of operations & management of crude oil and product terminals
- Apply proper planning and scheduling techniques in storage & transfer systems
- Command the various planning and transfer requirements for terminals
- Develop good terminal management skills
- Apply safe practices and procedures during the various operations in terminals including oil spill contingency and emergency response plans
- Learn techniques on blending recipes for on specification products
- Understand the limitations of tank gauging methods and learn up to date new technologies and methodologies for accurate tank measurement
- Perform calculations for emissions discharges and dispersion with the aid of dedicated simulation software

## TRAINING METHODOLOGY

- This Tank Farm Operations and Performance training seminar includes interactive sessions with questions, discussions and problem solving under supervision along with group exercises. It will be conducted as an interactive seminar that encourages participants to share their own experiences and apply the seminar material to real-life situations.

## ORGANISATIONAL IMPACT

- Improved terminal operations
- Enhanced operational integrity
- Better operational performance
- Improved equipment usage
- Development of a better safety culture
- Improved balance sheet bottom line

## PERSONAL IMPACT

- Deeper understanding and improved ability to critically analyze the methods employed in this industry
- Become familiar with new the technology and its impact in storage terminals
- Appreciate how correct product blending can minimize quality giveaway, add value and improve Tank Farm Operations and Performance
- Enhance your understanding of correct sampling and custody transfer / Bill of Lading
- Technical skills advancement and knowledge to comprehend and carry out how vapor emissions and recovery are carried out

## WHO SHOULD ATTEND?

- This Tank Farm Operations and Performance training seminar is designed for anyone employed in oil refining or anyone working in an oil and or product storage facility. In addition, it is intended, but not limited to professionals involved in handling, loading, or discharging of oil and gas cargoes.
- This training seminar is specifically designed for:
  - Marine Terminal Managers, Supervisors and Superintendents
  - Oil and Gas Refinery or Product Storage Facility Personnel
  - Oil and Gas Operators and Engineers
  - Facility Managers and Coordinators
  - Process Engineers, Project Managers, Mechanical Engineers, Electrical Engineers, Instrumentation / Control Engineers, Technical Staff
  - Safety and Environmental Personnel
  - Transfer Supervisors
  - Oil and Gas Cargo Officials

## Course Outline

### Crude Oil and Product Properties

- Review of Energy Production and Consumption
- Tank Farm Operations, Planning and Scheduling
- Physical, Chemical & Hazardous Properties of Stored Products
- Effects of Physical & Chemical Properties on Choice of Storage
- Safety and Risk
- Ignition Sources – Electrostatic charge - NFPA 77
- Fire Detection, Firefighting & Protection

### Tank Types, Construction & Requirements for Stored Products

- Tank Farms Differences and Purpose
- Tank Design & Engineering considerations, API Codes & Standards
- Crude & Refined Product Storage
- LNG, LPG, CNG Storage
- Roof Types
- Fixed, Dome & Cone
- Floating Roof, Internal / External
- Suction Levels Fixed / Floating
- Estimation and Measurement of Tank Emissions and Losses

## Tank Terminal Operations

- Tank Farm Layout, Secondary Containment, Bund Walls
- Emergency Response, Handling Oil Spills
- Water Drainage Systems Network and Process Water Treatment
- Ship to Shore Transfers, Ship Loading and Discharge Process
- The of Bill of Lading, Custody Transfer and Administration
- Tank Gauging and Metering, Meter Proving, Stock Loss & Pipeline Transfer Loss

## Terminal Management

- Comingled Stock & Unpumpables
- Terminal Inventory Control & Inter Tank Transfers
- Changing Tanks Service
- Tank Calibration / Recalibration
- Instrumentation, Flow and Level Measurement
- Spill and Overfill Control
- Level Alarms / Independent Level Alarms
- Product Blending and Product Failures

## International Regulations & Requirements for Oil & Gas Marine Terminals

- The Seveso III Directive
- ISGOTT - Required notifications in the event of a release
- Release Detection, Response, Reporting and Investigation
- Tank Cleaning
- Gas Freeing and Confined Entry
- API 653 Tank Inspection
- Tank Failure Causes and Prevention
- Settling
- Corrosion