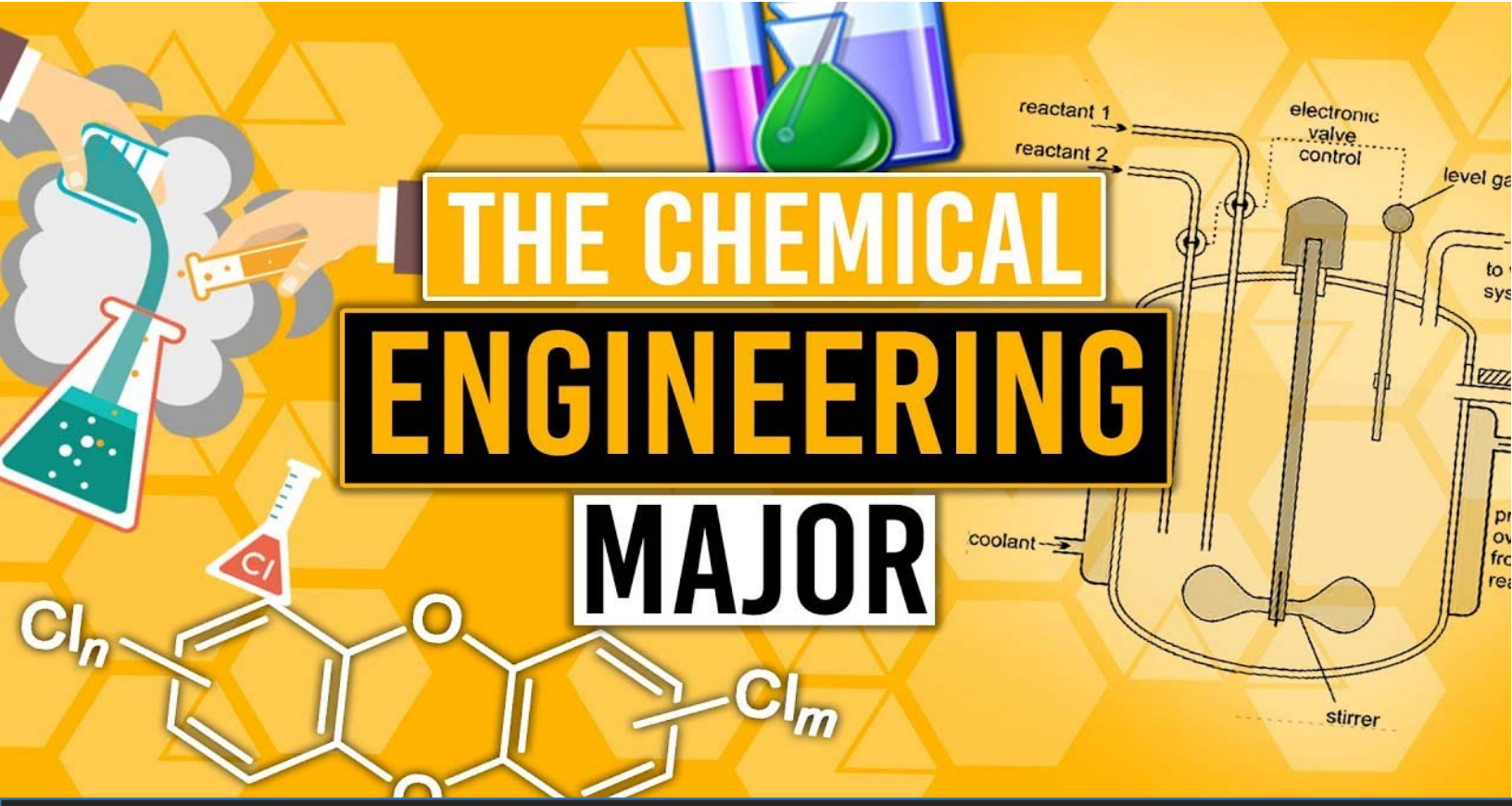

Tank Farm Operations and Performance

BTS
Training & Consultancy

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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 training course 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 BTS training course, 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 of 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.

This training course will feature:

- 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

Training Objectives

What are the Goals?

The tank farm's mission is to perform its daily operations while maintaining a safe storage terminal. Attendance of this five day training course 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

Target Audience

Who is this Training Course for?

This training course 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 course 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

Daily Agenda

Day One: Crude Oil and Product Properties

Competency Description: As a professional in the oil and gas industry, you need to gain fundamental technical skills to comprehend Tank Farm Operations and Performance.

Key behaviours

- Understand the scope and structure of the Tank Farm Operations industry
- Appreciate the importance of knowing the physical and chemical characteristics of stored petroleum products and how these impact the storage choice
- Explore how the different types of product stored impact firefighting and prevention methods
- Learn the fundamentals of fire detection and firefighting

Topics to be covered

- 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
- Case study - I: Static Electricity Major accidents
- Case study - II: Jet fuel conductivity adjustment

Day Two: Tank Types, Construction & Requirements for Stored Products

Competency Description: Learn how different types of storage tanks are constructed as per API-650 / API-620 and inspected as per API-653.

Key behaviours

- Understand the differences between the various types of storage tanks
- Understand the variations in the types of storage tanks used to store crude oil products
- Explore the methods used in reducing emissions and how these are recovered.
- Carry out emission calculations and dispersion simulations

Topics to be covered

- 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
- Case Study: Emission reduction technologies, Vapor recovery units
- Group exercise: Emissions estimation & dispersion –Simulation Calculations (Use of PC's)

Day Three: Tank Terminal Operations

Competency Description: Learn the different methods of tank gauging and the importance of fiscal metering

Key behaviours

- Understand the requirement for the strict compliance of secondary containment and bund walls specifications
- Be fully aware of how to handle and contain oil spills and learn how oily water drained in tank operations is handled and treated before discharge.
- Learn the proper procedure for crude oil and product transfer and appreciate the different types of instruments used for custody transfer their accuracy and turndown.
- Comprehend the purpose and use of the Bill of Lading
- Appreciate the source, impact and magnitude to tank gauging errors
- Learn the different methods in tank calibration

Topics to be covered

- 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
- Sampling and quality control – ISO 17025
- Group exercise: Loss estimation – Excel Calculations

Day Four: Terminal Management

Competency Description: Learn the different methods for tank calibration, its importance and impact on fiscal transfers

Key behaviours

- Learn how comingled stock & unpumpables are treated in oil terminals
- Appreciate the different types of instruments used for tank level & flow measurement and their importance to product transfer
- Acquire blending skills to minimize quality and value giveaways
- Carry out calculations using excel to predict important product properties and thus minimize product failures
- Appreciate that tank farm blending operations can add value by improving the terminals bottom line.
- Learn the different methods of tank calibration

Topics to be covered

- 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
- Excel Calculations: Blending exercise (Use of PC's)

Day Five: International Regulations & Requirements for Oil & Gas Marine Terminals

Competency Description: Appreciate the importance of the recent Seveso III directive and its impact on tank farm operations

Key behaviours

- Understand the importance of The Seveso III Directive
- Understand the importance of the International Safety Guide for Oil Tankers and Terminals - ISGOTT
- Grasp the techniques for corrosion control and measurement.
- Learn the significance of tank farm inspections - API 653

- Learn the various methods used for tank cleaning, gas freeing and confined entry

Topics to be covered

- The *Seveso III* Directive
- ISGOTT - Required notifications in the event of a release
- Release detection, response, reporting and investigation
- Tank cleaning g
- Gas freeing and confined entry
- API 653 Tank Inspection
    - Tank failure causes and prevention
    - Settling
    - Corrosion
- Case Study - I: Tank Inspection Final Report
- Case Study - II: The *Seveso III* Directive example reports