Best Technology Solutions (BTS)

Surface Facility Production Operations Training program

Introduction:

The purpose of this course is to present an overview and fundamental understanding of the wide range of oilfield production handling and treatment equipment. The participant should learn field fluid treating equipment operation. The fundamental principles of fluid behavior are first introduced, and then applied to all of the various equipment and systems comprising production operations. Emphasis is on understanding the internal workings inside the piping, valves and vessels. A major goal of this course is to improve communication among the technical disciplines, field and office in order to enhance operational efficiencies, lower costs and improve production economics. Daily sessions include formal presentation interspersed with directed discussion and problem solving.

This course describes the process for the gathering system, fluid treatment, transportation, measurements and storage facilities associated with Surface Production Operations. Natural gas and oil physics characteristics are presented together with their effect on separation, treatment and measurements. The delegates will learn through how to operate the surface facilities production equipment and process.

Who Should Attend?

Production, Operations, Facilities and Petroleum Engineers, Field Production Supervisors, Surface Equipment Technicians, who interact with field facility engineers/operators Surface Facility Operation Engineers, Surface Facility Design, Production Operation Engineers, Production Managers

Course Objectives:

By the end of this course delegates will learn about:

- The physical properties and phase behavior of crude oil and natural gas that govern production operations
- Field processes for treating and conditioning full well stream production for sales or final disposition
- An introduction to the wide range of equipment used to process, treat, transport, and store oilfield produced fluids
- The basics of oilfield corrosion prevention, detection and treatment
- How to determine and minimize pressure drop in pipelines, valves and pressured vessels.
- Internal workings of separators, pumps, compressors, valves and other treating equipment
- An overview of the processes and equipment used to handle acid gases
- A basic understanding of a wide range of produced fluid volume measurement and metering devices

Course Outline:

Introduction to Surface Facilities

- Field Development Overview
- Why Surface Facilities
- Data Required, Fluid Characterization
- The Surface Facilities Processes

- The Function of the Surface Facilities Processes
- Hydrocarbon Specifications

Well Control and Safety System

- Well Head and Wellhead equipment
- Control and Safety System
- Choke (fixed, adjustable), Choke Box and Choke valve
- The Principles Of Flow Through Chokes

Gathering System

- The function of a manifold in gathering stations
- Flowlines, Horizontal pipe flow patterns
- Multiphase flow Fundamental, Multiphase Flow Meters
- Flowlines â€“ surge phenomenon
- Manifold: Onshore, Offshore, and Subsea

Separation System

- Objective, Two- and three phase separation
- Horizontal and vertical separators
- Production Separator
- Type of separation: Flash, Deferential, stage
- Remark on Sizing, Multistage Separation, Test separator

Oil Treatment

- Free water, Demulsification
- Dehydration, Heater-Treater, Desalting

Water Treatment

- Objective, Deoiling
- Water Injection Requirement And Facilities
- Water Disposal Requirements And Facilities
- Water Treatment Technology

Gas Treatment

- Objective, Gas composition, Gas process flow
- Water Removal, Heavy Hydrocarbon Removal
- Contaminant Removal (H2S, CO2)
- Gas To Export Specifications
- Gas injection/Gas Lift Specifications

Custody Transfer/Measurements

- Objectives, Fiscal measurements
- Reconciliation, Crude measurement
- Introduction, Storage Tanks
- Lease Automatic Custody Transfer (LACT) Units
- Turbine Meters, Positive Displacement Meters

Pumps

- Pumping system in the oilfield
- General considerations, Pump types
- Pump system design and selection
- Introduction to multiphase pumps

Natural Gas Compression

- Reciprocating compressors, Rotary compressors
- Centrifugal compressors, Compressors