



THE CHEMICAL ENGINEERING MAJOR

Surface Facility Production Operations

Website: www.btsconsultant.com

Email: info@btsconsultant.com

Telephone: 00971-2-6452630



Surface Facility Production Operations

Introduction:

The purpose of this programme is to present an overview and fundamental understanding of the wide range of oilfield production handling and treatment equipment. The participant should learn not only "what" but "how" field fluid treating equipment works.

The fundamental principles of fluid behavior are first introduced, 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 programme 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.

Who Should Attend?

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

Methodology:

Surface Facility Production Operations is a hands-on, stimulating learning experience. The programme will be highly interactive, with opportunities to advance your opinions and ideas. Participation is encouraged in a supportive environment. To ensure the concepts introduced during the programme are understood, they will be reinforced through a mix of learning methods, including lecture style presentation, and open discussion.

The programme will be presented with the use of PowerPoint slides and videos. This will be augmented by case studies and facilitated discussions, to engage the delegates and to encourage the exchange of ideas.

Programme Summary :

This programme 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's and process.

Certificate:

BTS attendance certificate will be issued to all attendees completing minimum of 80% of the total course duration.

Objectives:

- 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

Contents:

DAY 1 - Surface Facilities

- 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 - surge phenomenon
 - Manifold: Onshore, Offshore, and Subsea

DAY 2 - Separation & Treatment

- Separation System
 - Objective
 - Two- and three phase separation
 - Horizontal and vertical separators
 - Production Separator

- Type of separation: Flash, Differential, stage
 - Remark on Sizing
 - Multistage Separation
 - Test separator
- Oil Treatment
 - Free water
 - Demulsification
 - Dehydration
 - Heater-Treater
 - Desalting

DAY 3 - Water and Gas Treatment

- 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

DAY 4 - Measurement

- Custody Transfer/Measurements
 - Objectives
 - Fiscal measurements
 - Reconciliation
 - Crude measurement

- Introduction
- Storage Tanks
- Lease Automatic Custody Transfer (LACT) Units
- Turbine Meters
- Positive Displacement Meters

DAY 5 - Rotating Equipment

- 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
 - Compressor selection