

Training Title

OPERATION OF PRODUCTION SYSTEMS & PROCESS UPSETS, TROUBLESHOOTING & OPTIMIZATION

Training Duration

5 days

Training Venue and Dates

Operation Of Production Systems & Process Upsets, Troubleshooting & Optimization	5	5-9 February, 2024	\$5, 500	Dubai. UAE.
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Trainings will be conducted in any of the 5 star hotels.

Training Fees

\$5,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Buffet Lunch.

Training Certificate

Prolific Consultants FZE Certificate of Course Completion will be issued to all attendees.

TRAINING OVERVIEW

COURSE DESCRIPTION

This course provides, through a comprehensive practical training, the required technical knowledge and skills to hold the position of field operator and to contribute to safe and efficient plant operations in upstream Oil production facilities. And managers will get Certification of Completion.

The emphasis of this course is on oil production facilities - from the wellhead to the delivery of a specification crude oil product, to the refinery. Both onshore and offshore facilities are discussed. Solution Oil handling processes and equipment will be discussed at a relatively high-level involving production wellheads, early separation facilities, pumping, heat exchanging, crude oil stabilization and ultimately the storage and transportation. In addition to the engineering aspects of oil production facilities, practical operating problems will also be covered, including emulsion treatment, sand handling, etc. Exercises requiring calculations are utilized throughout the course.

COURSE OBJECTIVE:

By the end of the course delegates, will be able to:

- ✓ The training participants will acquire the following knowledge and skills necessary for improving their work performance.*
- ✓ Gain underpinning knowledge on nature of the process fluids inside the reservoir*
- ✓ Gain understanding on oil, gas, and water compositions and properties needed for equipment selection and sizing.*

- ✓ *To apply physical and thermodynamic property correlations and principles to the design and evaluation of oil production and processing facilities*
- ✓ *Perform a high-level equipment sizing calculations for major production facility separation equipment.*
- ✓ *To evaluate processing configurations for different applications*
- ✓ *How to recognize and develop solutions to operating problems in oil and processing facilities*
- ✓ *Assess Well inflow performance and its impact on production/processing facilities.*
- ✓ *Explain processes, equipment, and machinery,*
- ✓ *Adjust equipment operating parameters as required for safe operation and maintain product quality targets,*
- ✓ *Safely perform routine operations, surveillance of plant equipment and apply special operating procedures,*
- ✓ *Identify and react adequately to plant upset.*
- ✓ *Perform equipment sizing calculations for major production facility separation equipment.*
- ✓ *Recognize and develop solutions to operating problems in oil/water processing facilities.*
- ✓ *.*

SUITABLE FOR:

This Oil production operation course would be suitable for:

- ✓ *Production technicians.*
- ✓ *Control room operators*
- ✓ *Outside operators*
- ✓ *SR. operators*
- ✓ *Supervisors*
- ✓ *Site Engineers.*

TRAINING METHODOLOGY:

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivating everybody to find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on a daily basis to examine the effectiveness of delivering the course.

COURSE OUTLINE:

<i>Date</i>	<i>Contents</i>	<i>Outline</i>	<i>Note</i>
<i>Day 1</i>	<p><i>Introduction to Principles of Oil & Gas industry</i></p> <p><i>P & ID</i></p>	<ul style="list-style-type: none"> • <i>Structure of matter</i> • <i>States of matter</i> • <i>Change of state</i> • <i>Heat & heat transfer</i> • <i>Pressure</i> • <i>Fluid flow.</i> • <i>Venturi tube</i> • <i>Ultra sonic</i> • <i>Type of Corrosion</i> • <i>pH scale</i> • <i>Introduction to organic chemistry</i> • <i>Element Carbon</i> • <i>Hydrocarbons</i> • <i>Classification of hydrocarbons</i> • <i>Properties of hydrocarbons</i> • <i>Hydrocarbons in petroleum industry.</i> • <i>Oil & Gas over view..</i> • <i>Gas processing.</i> • <i>PFD</i> • <i>P& ID</i> • <i>Piping & valves</i> 	
<i>Day2</i>	<p><i>Separation & Emulsion treatment And Chemical treatment</i></p>	<ul style="list-style-type: none"> • <i>Introduction to separation process</i> • <i>Basic theory of separation</i> • <i>The separation process</i> • <i>Construction of separators</i> • <i>Separator's instrumentation and control</i> • <i>Separation Process / sections</i> • <i>Separation in Stages</i> • <i>Classification of separator</i> • <i>Water Field Emulsion</i> • <i>Emulsifying Agents</i> • <i>Selection of Emulsion</i> • <i>Principle of emulsion breaking</i> 	

Date	Contents	Outline	Note
		<ul style="list-style-type: none"> • Emulsion Treatment Equipment. • Desalting. • Demulsifier overdosing • Droplet size • Principles emulsion breaking. • Chemical treatment effect. • Chlorine solution (sodium hypochlorite— Naocl) • Methanol • Oxygen Scavengers • Defamers • Biocides • Paraffin inhibitors. • Corrosion Inhibitor. • Scale Inhibitor. • Calculation of chemical injection. 	
Day 3	Well Had Christmas tree Well test and well control	<ul style="list-style-type: none"> • Oil & gas well life cycle • Well types • Wellhead • Xmas tree • Corrosion Coupons • Sand detector devices • Hydraulic power unit • Low pressure hydraulic system • SSV-Surface Safety Valve • Purpose of well testing • Testing of new well • Operational well testing • Well testing using test separator • Well testing using MFM • Well monitoring. • Composition of wellhead control panel. • Principles of wellhead control panel. • The operation of wellhead control panel. 	

Date	Contents	Outline	Note
		<ul style="list-style-type: none"> • <i>The initial put into use of wellhead control panel.</i> • <i>Common problems and troubleshooting of wellhead control panel</i> • <i>Oil processing</i> • <i>Artificial lift</i> • <i>Gas processing</i> 	
Day 4	Types of Pumps And Fire water system	<ul style="list-style-type: none"> • <i>Centrifugal pump (Major parts)</i> • <i>Bearing</i> • <i>Mechanical seal</i> • <i>Operation of centrifugal pump</i> • <i>Troubleshooting</i> • <i>Single stage</i> • <i>Multi-stage</i> • <i>Pump control and arrangement</i> • <i>Operating parameter and normal operation</i> • <i>Introduction (Positive displacement pumps)</i> • <i>Reciprocating pumps</i> • <i>Rotary pumps.</i> • <i>Gear pumps</i> • <i>Vane pumps</i> • <i>Lobe pumps</i> • <i>Diaphragm pumps</i> • <i>Screw pumps.</i> • <i>Routine maintenance</i> • <i>Pulsation Dampener</i> • <i>Pressure safety valve</i> • <i>Plunger pumps</i> • <i>Centrifugal pump</i> • <i>Parallel and series system for pumps</i> • <i>Lube oil and seal oil for high pressure pumps.</i> • <i>Procedure for the start-up and shutdown of Coarse filter package.</i> • <i>Procedure for the start-up and shutdown of water injection plant</i> • <i>Checks required optimizing the operation</i> 	

Date	Contents	Outline	Note
		<p><i>of the plant and equipment.</i></p> <ul style="list-style-type: none"> • <i>Dual Mechanical seal of Centrifugal pump.</i> • <i>Cavitation.</i> • <i>Suction head</i> • <i>Left head.</i> • <i>NPSH (net positive suction head).</i> • <i>Fire water system</i> • <i>Diesel pumps.</i> 	
Day 5	Heat Exchanger	<ul style="list-style-type: none"> • <i>Introduction for Heat Exchanger</i> • <i>Function of heat Exchanger</i> • <i>Operation of Heat Exchanger.</i> • <i>Heat Transfer of Heat (Conduction-Convection-Radiation).</i> • <i>Specific Heat Capacity</i> • <i>Latent heat & Sensible Heat.</i> • <i>Temperature.</i> • <i>Heat Transfer can be(Liquid---Liquid)</i> • <i>(Gas---Gas) & Liquid---Gas)</i> • <i>How Heat Exchange work?</i> • <i>Primary Classification of heat exchangers.</i> • <i>Surface Area.</i> • <i>Parallel flow</i> • <i>Counter Flow.</i> • <i>Cross Flow.</i> • <i>Shell and d tube heat Exchanger</i> • <i>Basic Construction</i> • <i>Shell side & Tube side.</i> • <i>TEMA (Thermal Exchanger Manufacturers Association).</i> • <i>Tube Sheets</i> • <i>Shell Assembly.</i> • <i>Baffles.</i> • <i>Possible Exchangers (Steam—Water)(Water—Water)(Oil---Water)(Thermal fluid---Water).</i> 	

Date	Contents	Outline	Note
		<ul style="list-style-type: none"> • <i>Plate Heat Exchanger.</i> • <i>Tubular bundle Shell</i> • <i>Inlet/Outlet Plenum.</i> • <i>Caps.</i> • <i>Kettle type Exchanger.</i> • <i>Floating Head Exchanger</i> • <i>'U' Tube Exchanger</i> • <i>Duple Pass Exchanger.</i> • <i>Advantage and Disadvantage of different types of Heat Exchanger.</i> • <i>The Fluid Flow.</i> • <i>The thickness of the wall.</i> • <i>Unit check</i> • <i>The main problem (Corrosion)& Leak</i> • <i>Fouling.</i> • <i>Chemical Reaction Products.</i> • <i>Maintenance with acid cleaning and high pressure Water Jetting.</i> 	

Case Studies, Role Plays, Videos, Discussions, Last Day Review & Assessments will be carried out.

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