PE099:
Crude Oil Treatments:
New Techniques in the Oil & Gas Industry
Training Description:

Oil wells generally, produce a mixture of hydrocarbon oil, water, gas, and even sand or solid material with dissolved minerals usually including a large amount of salt & other gases like hydrogen sulfide (H2S); and solids, including sand from the reservoir, dirt, scale, and corrosion products from the tubing. Foreign material, such as water and sand must be separated from the oil and gas before they can be sold. This process is known as Crude Oil Treating.

The purpose of Crude Oil treatment is to separate, remove, or transform these various components to make the liquid hydrocarbons (Crude Oil) ready for sales & send to refiners.

This intensive training course provides an overview of all the theories and technologies involved in crude oil treatment, starting with brief about Petroleum Crude Formation, Production, phase separation process, emulsion theory formation, crude oil desalting, stabilization and the mechanism through the technology to destabilize and separate water from oil in addition to crude oil storage and loading facilities.

Due to environmental regulations, the produced water must also be treated. This course will provide a brief of the processes & operational conditions needed to achieve the required specifications for the produced water.

Upon successful completion of this course, participants will gain knowledge & full understanding of crude oil treatment from A to Z (formation till loading to refiners) with extensive focus in Oil Treatment Operation.

The course will highpoint:
- Crude oil formation, accumulation & production
- Crude oil composition & characteristics
- Phase separation process (two & three-phase separation)
- Emulsion formation & treatment
- Crude oil dehydration
- Crude oil desalting
- Crude oil stabilization & sweetening
- Crude oil storage, loading & other field facilities
- Produced water treatment & disposal

Training Objectives:

By the end of the training, participants will be able to:
- Recognize the theory of crude oil formation, accumulation & production
- Understand the crude oil compositions & characteristics
- Acquire practical understanding of field treating facilities fundamental
- Identify the properties and behavior of crude oil that govern production processing operations
- Learn techniques of field processes for treating and conditioning full well stream production for sales or final disposition including separation, dehydration, desalting stabilization, storage & Loading
- Gain good understanding of the purpose and internal workings of all types of surface facilities and treating equipment
Training Designed for:

This course is intended for a wide range of professionals but will greatly benefit Field Service/Production Operators, Senior Operators & Supervisors, Operation Foremen and Team Leaders, Plant Engineers, Field Engineers & New Engineers, Maintenance Planners and Coordinators, and all field Maintenance Personnel (multi-crafts), those interested to understand what they maintain.

Training Program:

**DAY ONE:**
- PRE-TEST
- Introduction
- Petroleum Crude from Formation to Production
  - Formation and Accumulation of Petroleum Crude
  - Types of Petroleum Reservoir, Drilling the Oil Well, Producing the Oil Well
  - Composition and Characteristics of Petroleum Crude
  - Field Service Equipment

**DAY TWO:**
- Phase Separation Process
  - Two-Phase Gas – Oil Separation, Methods of Separation, Gas – Oil Separation Equipment
  - Three-Phase Oil-Water-Gas Separation
  - Horizontal Three-Phase Separators, Vertical Three-Phase Separators
  - Separation Theory

**DAY THREE:**
- Emulsion Treatment and Dehydration
  - Oil Emulsions, Dehydration/Treating Processes
  - Heating, Chemical Treatment
  - Electrical Aid, Chemi-electric Dehydrators (Emulsion Theaters)

**DAY FOUR:**
- Desalting of Crude Oil
  - Description of The Desalting Process
  - Relationship among Volume of Remnant Water, Its Salinity and Salt Content
  - Electrostatic Desalting, Determining Dilution Water Requirement
  - Effect of Operating Parameters Desalter System Trouble Shooting

**DAY FIVE:**
- Crude Oil Stabilization, Sweetening & Storage
  - Stabilization Operations
  - Types of Stabilizer Employing Energy as a Stripping Agent
  - Crude Oil Sweetening, Overview About Crude Storage Tanks
  - Vapor Recovery Units, Piping and The Oil Fields
  - Produced/Drained Water Treatment & Disposal
- Course Conclusion
- POST-TEST and EVALUATION
Training Requirements:

“Hands-on practical sessions, equipment and software will be applied during the course if required and as per the client’s request.”

Please note that the above topics can be amended as per client’s learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

As per the course location - This rate includes participant’s manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:45 - 08:00</td>
<td>Morning Coffee / Tea</td>
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<tr>
<td>08:00 - 10:00</td>
<td>First Session</td>
</tr>
<tr>
<td>10:00 - 10:20</td>
<td>Recess (Coffee/Tea/Snacks)</td>
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<tr>
<td>10:20 - 12:20</td>
<td>Second Session</td>
</tr>
<tr>
<td>12:20 - 13:30</td>
<td>Recess (Prayer Break &amp; Lunch)</td>
</tr>
<tr>
<td>13:30 - 15:00</td>
<td>Last Session</td>
</tr>
</tbody>
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For training registrations or in-house enquiries, please contact:

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Training & Career Development Department