



External Training Course

Water Treatment Process Operations

From 28 Jan. To 01 Feb. 2024

From 25 Feb. To 29 Feb. 2024

From 28 Apr. To 02 May 2024

Carlton Downtown Hotel, Dubai, UAE

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External Training Course:

Water Treatment Process Operations

From 21 Jan. To 25 Jan. 2024

Fees: 4250 \$

From 25 Feb. To 29 Feb. 2024

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From 28 Apr. To 02 May 2024

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Why Choose this Training Course?

When oil companies drill a well, approximately 130,000 gallons of water are required. This quantity is dwarfed when during well stimulation, water usage increases to 2.5 million gallons. During production, water injection or flooding increases the well pressure and enhances oil recovery from 30% of the oil in place to as much as 50%. The water used during these operations is required to be of a certain quality, however the importance of proper water treatment is often underestimated. This is due to the tremendous variation in the water sources used i.e. seawater, borehole, and river water. Poor water quality may lead to clogging of the reservoir and loss of oil production particularly during well stimulation and water injection. For every barrel of crude produced 7-10 barrels of water are produced, reusing it is vital for reducing the quantity of water used during the reservoir's lifetime. Produced water contains some oil and its treatment to an environmentally acceptable level is mandatory before disposal. Good oil and water separation is therefore necessary and the physics as well as the mechanics of proper oil and water separation need to be well understood not only for water reuse but also to meet these strict environmental discharge regulations. The methods most commonly employed for oil water separations, include gravity settling and gas flotation. Flotation depends on the surface characteristics of the oil and on its interaction with the gas bubbles. The method used depends on many factors including the type and physical and chemical characteristics of the crude oil ultimately however the governing principle of these separations is dictated by Stokes law.

What are the Goals?

By the end of this training course, participants will be able to:

- Learn the details of the impact of effective oilfield water chemistry.
- Comprehend how to assess the oilfield production liquid separation principles.
- Understand the importance of proper water treatment.
- Appreciate the importance of reusing produced water.
- Develop skills necessary to evaluate the technologies used in oil and water separation.

Course Details & Agenda:

Day One: Oilfield Water Chemistry

- The Nature, Chemistry and Composition of Hydrocarbons.
- Water Chemistry Fundamentals.
- Environmental Regulations and Water Specifications.
- Environmental Impacts Caused by Produced Water.
- Water Sampling and Analysis.

Day Two: Oilfield Production Liquid Separation Principles

- Produced Water Generation and Production and Management Practices.
- Wastewater recycle / reuse.
- Water Scaling, Corrosion Control and Microbiology of Water.
- Emulsions / Stabilization, Destabilization.
- Simulation Software to predict water quality for injection.

Day Three: Crude Oil Desalting

- Principles of flotation.
 - Dissolved/ Induced/ dispersed Air/ Gas Flotation.
- Key Design Parameters of Flotation.
 - Air-To-Solids Ratio.
- Henrys & Stokes Laws.
- Nucleus & Rate of Rise Theory.

Day Four: Separation and Treatment (I)

- Mechanical filters & Filtration Technologies.
 - Gravity Separation Systems.
 - API Separators.
 - Skim Tanks & Piles.
 - Plate Coalescers.
- Evaporative processes.

Day 5: Separation and Treatment (II)

- Desalting Technologies.
- Electro deionization.
- Ion exchange.
- Membrane processes & Desalination.