

Advanced Oil & Gas Field Processing
Module 2:
OIL AND WATER TREATMENT

Field Operations
Field processing

E- 504

OBJECTIVES

To provide technical knowledge of Oil and Water treatment processes, their operation and troubleshooting.

On completion of the course, participants:

- know the different problems posed by the undesirable components present in live crude oils, and the required treatments
- know the oil and water treatment processes, their operating conditions, and the influence of each operating parameter
- are able to design the main equipment used for oil processing
- know the main operating problems encountered in oil and water processing and the main available solutions
- have a first experience in the design of crude oil treatment processes

▲ Who should attend?

Graduate engineers involved in the **operation and/or design** of the Oil & Gas field processing facilities.

COURSE CONTENT

NEED FOR OIL FIELD PROCESSING - QUALITY REQUIREMENTS

0.5 day

Constituents that pose problems for storage, transport, or commercialization/utilization
Different specifications and quality requirements of crude oils.

Necessary treatments to reach these specifications.

Examples of compositions of commercialized crude oils.

CRUDE OIL TREATMENT

2.5 days

Crude **stabilization** (gas removal) by Multi Stage Separation (MSS)

Process principle

Different parameters: number of separation stages, pressures, heating and cooling needs...

Influence of these parameters on the quantity and quality (API grade) of the produced

oil

Foaming problems and main available solutions

Associated gas recompression - Typical associated gas compression schemes

Applications: practice of separator summary design methods

Crude **dehydration** (water removal) and desalting

Emulsion problems

Main dehydration processes

Crude oil desalting

Applications: practice of desalter summary design methods

Acid crude **sweetening** (H₂S removal)

Cold stripping: origin of stripping gas, need for sweetening of stripping gas

Hot stripping

Applications: practice of stripping summary design methods

Simulation using HYSYS software:

Study of an offshore crude oil field treatment unit, based on a Multiple Stage Separation (MSS) process scheme

Optimization of the operating parameters: pressure and temperature of separators, suction and discharge conditions of associated gas compressors, pumping needs for export by pipe,...

*Identification and adjustment of the **controlling parameters**, for each of the stabilized oil product specifications (rate, RVP, impurity contents,...) in order to meet the different **quality requirements***

INJECTION WATER TREATMENT

1 day

Reason for water injection

Quality requirements and necessary treatments: chlorination, filtration, oxygen removal, sterilization...

Operating principle of each treatment

Main operating conditions of each treatment and **required performances**

Examples of injection water treatment block flow diagrams

PRODUCTION WATER TREATMENT

1 day

Quality requirements for reject water - **Environment** related constraints

Main necessary treatments: oil skimmers (API tanks, plate separators), floating oil separators, hydrocyclones...

Operating principle of each treatment and **required performances**

Comparison of the different available techniques - **Selection criteria**

▲ Duration

5 days

▲ Dates & Location

February 26 to 29, 2008

Rueil-Malmaison (Paris)

▲ Tuition Fees

€ 1,940

▲ Course Coordinator

Mohamed SKHIRI

Ref. **PROD / ADV2**

