

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

**FIELD OPERATIONS**  
Operation & Safety

**E-505**

## 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.

## 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** (H<sub>2</sub>S removal)  
Cold stripping: origin of stripping gas, need for sweetening of stripping gas  
Hot stripping  
**Applications: practice of stripping column summary design methods**

**Simulation using Proll 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**  
*Examples of production water treatment block flow diagrams*

### ▲ Who should attend?

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

### ▲ Duration

5 days

### ▲ Dates & Location

**February 23-27, 2009**  
Rueil-Malmaison (Paris)

**Sept. 28 - October 02, 2009**  
Rueil-Malmaison (Paris)

**October 19-23, 2009**  
Rueil-Malmaison (Paris)

### ▲ Registration

Fees: € 2,060

Contact:

exp.rueil@ifptraining.com  
Fax: (+33) 1 47 52 74 27

### ▲ Course Coordinator

**Mohamed SKHIRI**

Ref. **PROD / ADV2**

