

▲ Who should attend?

Engineers and technicians, who look for information not only on the Oil & Gas field treatments, but also on the technology of the equipment used in these onshore and offshore processing facilities.

▲ Duration
10 days

▲ Dates & Location

December 08 to 19, 2008
Rueil-Malmaison (Paris)

▲ Tuition Fees

€ 3,390

▲ Course Coordinator

Franck BEIJER

Ref. PROD / FPSPF

FIELD PROCESSING AND SURFACE PRODUCTION FACILITIES

OBJECTIVES

To provide technical knowledge of Oil & Gas field processing techniques (onshore and offshore), as well as the technology and operating principle of the equipment used in these facilities.

On completion of the course, participants know the:

- fundamentals of Oil & Gas production techniques
- operating principle of the Oil, Water and Gas processes, and their main operating conditions
- techniques used for offshore production and their specificities
- technology of the main equipment used in these processing facilities
- fundamentals of process control and typical safety systems layout
- fundamentals of metering techniques and corrosion prevention and monitoring

COURSE CONTENT

FUNDAMENTALS OF RESERVOIR, DRILLING AND COMPLETION 0.4 day

Hydrocarbon generation
Reservoirs: types, exploration techniques
Drilling principle - Case of offshore drilling
Main completion equipment - Principle of well activation by pumping, gas lift, ...
Enhanced Oil Recovery (EOR): aim and principle of the main techniques

WELL EFFLUENTS BEHAVIOR - NEED FOR EFFLUENT FIELD PROCESSING 0.6 day

Well effluent composition - Different types of well effluent (black oil, light oil, volatile oil, wet gas, retrograde gas, dry gas)
Main characterization parameters: GOR, CGR, FVF, Bo, Bg, BSW, WOR, Water Cut, Bo, Bg, B'g...
Liquid/Vapor equilibrium of pure substances and mixtures - Vapor pressure curves and **phase envelopes**
Well effluent behavior from pay zone up to the surface processing plant inlet
Constituents that pose problems for storage, transport, or commercialization/utilization of crude oils and natural gases
Main **specifications** to be respected and required treatments
Examples of compositions of well effluents and commercialized crude oils and natural gases

CRUDE OIL TREATMENT 1 day

Crude **stabilization** (gas removal) by Multi Stage Separation (MSS) - Foaming problems and main available solutions.
Crude **dehydration** (water removal) and desalting - Emulsion problems and main available treatments.
Crude **sweetening** (H₂S removal).
Examples of oil treatment and associated gas compression process schemes.

PRODUCTION AND INJECTION WATER TREATMENT 1 day

Production water networks: drain drums, open and closed drains, safety considerations.
Reject water environmental constraints and required treatments.
Injection water: aim, quality requirements and required treatments (chlorination, filtration, oxygen removal, sterilization).

GAS TREATMENT 2 days

Gas dehydration (drying): TEG units, desiccants - Hydrate formation inhibition: MeOH, MEG or DEG injection.
Gas sweetening - Acid components (H₂S et CO₂) removal: amine units, molecular sieves, membranes.
Natural Gas Liquids (NGL) extraction: use of cryogenic refrigeration, Joule-Thomson expansion, expansion, or Turbo-expander.

CASE OF OFFSHORE DEVELOPMENTS - FLOW ASSURANCE 1 day

Different offshore production structures: jacket, semi-submersible, Spar, TLP, FPSO... - Selection criteria
Storage and offloading vessels (**FSO, FPSO, buoy**...)
Deep offshore developments - Examples of subsea architecture
Subsurface/surface flow assurance - Problems related to multiphase flow
Flow Assurance: problems of slug, erosion, hydrate formation, deposits (paraffins, asphaltenes, naphthenates, carbonates, sulfates, salts...) - Main preservation techniques and pigging solutions

ROTATING MACHINERY 1 day

Pumps, Compressors, turboexpanders and gas turbines: types, operation, technology - Examples of application.

THERMAL EQUIPMENT 0.5 day

Heat exchangers, Air coolers, Furnaces, Heaters, fire tubes : types, operation, technology

FUNDAMENTALS OF CORROSION 0.5 day

Different types of corrosion, prevention and monitoring
Case of corrosion due to sea water

INSTRUMENTATION & PROCESS CONTROL - SAFETY SYSTEMS 1 day

Elements constituting a simple process control loop - case of override and split-range loops - DCS
Technology and working principle of sensors, transmitters and control valves
Emergency Shut Down Systems (ESD), Fire and Gas Systems, High Integrity Pressure Protection System (HIPPS)...

METERING AND ALLOCATION 1 day

Metering of liquids, gas - Multiphase metering