Oil Field Surface Operations: Receiving and Separation Processes

Course general description:

This comprehensive five-day training course is designed to provide oil and gas operators with essential knowledge and practical skills in oil receiving and separation operations. The course covers fundamental concepts, equipment operation, process control, safety protocols, and quality assurance in surface facilities. Through a combination of theoretical lectures, practical case studies, and hands-on discussions, participants will develop the necessary competencies to effectively manage oil field surface operations.

Audience:

This course is designed for:

1. Entry to intermediate level oil and gas operators
2. Field operators transitioning to separation facilities
3. Production technicians
4. Junior process operators
5. Operations trainees

Course objectives:

1. Understand the principles of oil receiving and separation processes
2. Identify and explain the function of major equipment in separation facilities
3. Monitor and control operational parameters for optimal performance
4. Implement quality control measures in separation processes
5. Apply safety protocols and emergency procedures
6. Troubleshoot common operational issues
7. Interpret process flow diagrams and P&IDs
8. Maintain accurate operational records and documentation

Course duration:

5 days

Course location:

Dubai

Course contents:

Day 1: Introduction to Oil Field Surface Operations

- Fundamentals – Overview of oil field surface facilities, separation principles, and hydrocarbon properties.
- Oil Receiving Systems – Wellhead systems, manifolds, flow lines, and inlet receiving facilities.
- Fluid Flow and Measurement – Basic fluid dynamics and flow measurement techniques.
- Process Diagrams – Reading P&IDs and process flow diagrams for operational understanding.
- Practical Exercises – Case studies, group discussions, and quizzes on receiving system configurations.

Day 2: Primary Separation Equipment

- Two-Phase Separation – Design, operation, and control of gas-liquid separation.
- Separator Internals – Functions of key components and optimization of performance.
- Three-Phase Separation – Oil-water-gas separation, level control, and emulsion handling.
- Operational Challenges – Key parameters affecting efficiency and troubleshooting methods.
- Practical Exercises – Hands-on separator troubleshooting, level control simulation, and performance monitoring**.**

Day 3: Secondary Processing and Treatment

- Gas Processing – Gas scrubbing, compression, dehydration, and fuel gas systems.

- Liquid Processing – Heater treaters, electrostatic coalescers, and chemical injection.
- Storage and Transfer Systems – Storage tank design, maintenance, and operational best practices.
- Equipment Maintenance – Preventive maintenance and common troubleshooting techniques.
- Practical Exercises – Chemical injection calculations, case studies, and equipment maintenance procedures**.**

Day 4: Process Control and Safety

- Process Control Basics – Instrumentation, control loops, alarms, and shutdowns.
- Safety Systems – Process safety management, emergency shutdowns, and flare systems.
- Fire and Gas Detection – Hazard identification and response strategies.
- Emergency Procedures – Safety system response scenarios and emergency drills.
- Practical Exercises – Control system troubleshooting and hands-on safety drills**.**

Day 5: Quality Control and Assessment

- Quality Control Basics – Product specifications, sampling, and testing procedures.
- Regulatory Compliance – Environmental standards and operational best practices.
- Documentation and Reporting – Quality control logs and compliance documentation.
- Final Assessment – Written examination covering all course topics.
- Certification & Closing – Course evaluation, feedback session, and certificate distribution**.**

Methodology:

- 50% lectures & concepts
- 10% Videos
- 15% Case studies
- 15% Exercises & Quizes.
- 10% Discussions

Course code: (TPR0020)