



PCE110

Oil & Gas Plant Process and Equipment: Troubleshooting & Problem Solving

Course Introduction:

This course will cover how to establish and apply a general troubleshooting methodology as well as how to conduct process/equipment specific troubleshooting. Definitions of good/normal performance will be discussed for each process/equipment type covered. Data gathering, validation and utilization procedures will be discussed. Criteria to use when evaluating possible problem solutions will also be covered. Real-world exercises will be utilized throughout the class to reinforce the learning objectives. Both onshore and offshore facilities will be discussed. It is assumed that course participants have a solid understanding of how typical oil and gas production and processing facilities work, including the commonly used processes and equipment involved.

Course Objectives:

Upon successful completion of this course, the delegates will be able to:

- ✓ The difference between troubleshooting, optimization, and debottlenecking
- ✓ How to recognize trouble when it is occurring
- ✓ How to develop a methodical approach to troubleshooting
- ✓ To recognize how different components of a facility interact with each other, and the significance of these interactions
- ✓ How to gather, validate, and utilize the data needed for troubleshooting
- ✓ The criteria to be considered for identifying the best solution when several feasible solutions are available
- ✓ Typical causes of problems, and their solutions, for the main types of processes and equipment used in the upstream-midstream oil and gas industry

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International Centre For Training & Development

Who Should Attend?

This course is intended for all Process/Facilities engineers with experience, facilities engineering team leaders/supervisors, and senior facilities operational personnel, junior engineers, operators and senior operators and supervisors who work in oil production facilities and oil refineries.

Course Outline:

Day 1:

- Natural gas properties
- Overview of gas processing industry
- Natural gas properties
- Understanding phase behavior

- Troubleshooting methodology fundamentals and data reconciliation
- Amine gas sweetening

Day 2:

- Gas sweetening operation and troubleshooting
- Glycol dehydration units
- Glycol dehydration operation and troubleshooting
- Solid bed dehydration and troubleshooting
- Oil treating
- Produced water treating systems
- Water-hydrocarbon behavior

Day 3:

- Meaning of absorption technology
- Adsorption principles and troubleshooting
- Molecular sieve dehydration units
- NGL recovery processes
- Refrigeration systems and troubleshooting
- Valve expansion: J-T plants

Day 4:

- Cryogenic gas processing and troubleshooting
- Equipment troubleshooting
- 3-phase separators
- Centrifugal pumps
- Reciprocating compressors, reciprocating engines
- Shell and tube heat exchangers

Day 5:

- Centrifugal compressors
- Gas - Liquid separators
- Reciprocating compressors
- Loss in centrifugal compressor capacity
- Gas turbine driven
- Plant pipelines hydrate, corrosion problems
- Case studies

Course Certificate:

International Center for Training & Development (ICTD) will award an internationally recognized certificate(s) for each delegate on completion of training.

Course Methodology:

A variety of methodologies will be used during the course that includes:

- (30%) Based on Case Studies
- (30%) Techniques
- (30%) Role Play
- (10%) Concepts
- Pre-test and Post-test
- Variety of Learning Methods
- Lectures
- Case Studies and Self Questionnaires
- Group Work
- Discussion
- Presentation

Course Fees:

To be advised as per course location. This rate includes participant's manual, and-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Timings:

Daily Course Timings:

08:00 - 08:20	Morning Coffee / Tea
08:20 - 10:00	First Session
10:00 - 10:20	Coffee / Tea / Snacks
10:20 - 12:20	Second Session
12:20 - 13:30	Lunch Break & Prayer Break
13:30 - 15:00	Last Session