Course Title: Subsea Xmas Trees Course

Duration: 3 Days

Course Description:

This comprehensive “Subsea Xmas Trees” course comprises lectures, photos and video presentations, some case studies and workshops providing an overview of Subsea Xmas Trees. This course provides an insight to fundamental issues for a robust, safe, and economical selection of subsea valve and actuator systems. The topics of the course are carefully selected to cover pipeline valve aspects from conceptual to detailed design. The principal codes followed in this course include ASME VIII div. 1 & 2, ISO 10423 (API 6A) Whd’s and XMT, ISO 13628-4 (API 17D) subsea W’hds, and ISO 15156 (NACE MR 0175). Associated Recommended Practices are also included for completeness, viz:- DNV RP F112 Design of duplex stainless steel under cathodic protection, and DNV RP B401 Cathodic Protection Design.

The attendees will receive a certificate from Z-Subsea/Valve Institute upon successful completion of the training course.

This training course helps to gain understanding on:

- Steps involved in engineering and design of subsea xmas trees from initial selection to pre-commissioning;
- Key topics related to engineering of subsea xmas trees;
- Physical concept behind xmas tree design philosophy;
- Criteria for robust and safe design of xmas trees.

Who should attend:

- Engineering Graduates;
- Pipeline engineers;
- Commissioning and Pre-commissioning engineers;
- Subsea and offshore engineers;
- Inspection and Maintenance Engineers;
- Project engineers and managers.

  Engineers from other sectors of the Oil and Gas industry who wish to gain understanding of subsea pipeline engineering.

Subsea Xmas Trees Course

Z-Subsea

Course Contents:

Introduction
Subsea Tree Criticality
Subsea Global Trends and Challenges
Overview of all Project Phases
Potential Tree failure modes

Subsea Drilling
Subsea well program
Drilling a well
Running the conductor
Cementing processes
Running the Blow Out Preventer
Cleaning and abandonment

Wellhead Systems
Wellhead Types
Wellhead stack-up overview
Wellhead components
Housing
Conductor
Casing
Pack-off
Metal to metal sealing

Subsea Tree Functionality
Monobore (MBT) (Vertical)
Concentric (CBT)
Non-Concentric
Dual Bore (DBT) (Vertical)
Side Valve (SVT) (Horizontal)
Cross Over (CTS) (Vertical and Horizontal)
Drill Through System

Tree Interfaces
Tubing Hangers
Tubing Hanger Lockdown Systems
Wellhead connectors
Connector load Capacities

Installation Tooling
Running/retrieving Operations
Horizontal versus Vertical Tooling
Surface Tree
Cased Wear Joint
Tension Joint
Riser Joint
Stress Joint
EDP/LRP/Treecap
Swivel Joint
Lubricator Valve
Casing/Tubing Riser
Universal Running Tool

Completion Types
Basic principles of Completion
Monobore systems
Open Water Systems
Test/handling equipment

Intervention/Workover Systems
Completion Workover Riser System
Workover Control Systems
Light, medium, and heavy interventions
Landing string versus Open Water Riser
XT changeout
Scale milling
Completion changeout
Re-drilling / sidetracking
Commercial Considerations

Technical Considerations
Riserless Lightweight Intervention System
Reservoir Stimulation
MARS concept
Dual Bore Risers

Commercial Considerations
Rental versus procurement

Factors influencing the final choice
Method of installation and completing the wells
Installation onto existing wells
Complexity of the lower and upper completion strings
Size of production tubing to be used
Requirement to flow test or clean up well thru riser
XT functionality
Requirement for early production
Planned or scheduled wireline and tubing workovers over life of field
Likelihood of further field expansion
MODU criteria
Tooling Systems
Operator experience

Design and Testing
PR2 testing
Performance Requirements
Terms and Definitions (MWP MOP MDP)
Material requirements for body, bonnet, etc.
End connections and actuator materials
ASME method VIII DIV. 2 Stress calc.

Future Developments
All electric and hybrid Trees