

CASING AND WELL DESIGN

DRL010

COURSE DESCRIPTION

The first design task in preparing the well plan is selecting the depth to which the casing will be run. In this course, drilling engineer will learn how he can consider geological Conditions as formation pressures and fracture gradients for casing setting depth selection. In addition, in this course will discuss the procedures, formulas, and rule of thumb for developing a detailed casing program.

COURSE GOAL

To enhance participants' knowledge, skills, and abilities necessary to have a thorough understanding of a comprehensive approach to casing design and practice, cementing methods and operations.

COURSE OBJECTIVES

By the end of this course, participant will be able to:

- Consider geological Conditions as formation pressures and fracture gradients for casing setting depth selection.
- Apply procedures, formulas, and rule of thumb for developing a detailed casing program.

WHO SHOULD ATTEND

- Drilling engineers.
- Drilling supervisors.
- Senior engineers and team leaders in drilling engineering / operations.

COURSE DURATION

5 Working Days

COURSE OUTLINES

- Steel properties and API casing strengths.
- Fracture gradient: A Rock Mechanics approach.
- Casing seat selection: graphical methods, refinements, case histories.
- Casing design criteria: Collapse, Burst, Tension.
- Detailed Collapse design: partial and full evacuation; when to use each.
- Kick tolerance and kick profiles: industry approach.
- Burst Design: Casing full of gas, limited kick design.
- Detailed tension design: self weight, shock loading, pressure testing, bending forces, thermal

forces, pressure-area method.

- Offshore conductor design.
- Production casing design: tubing leak approach.
- Design factors: typical values; what do they mean.
- Casing design methods for: Exploration, Development, Horizontal and HPHT.
- Triaxial loadings.
- API load lines.
- Stress Ellipse including API load lines.
- Load cases.
- Temperature effects and trapped annular pressures.
- Buckling analysis.
- Sour gas consideration: special casing grades and effects of temperature, NACE and European standards.
- Connections: API and premium, methods of selection.
- Well suspension and abandonment.
- Casing wear.
- Complete well design.

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