

CASING AND CEMENTING

DRL017

COURSE DESCRIPTION

This course covers the most recent trends and analyzes the changing dynamics of casing and cementing. It builds a solid foundation in the principles and practices of designing, planning and conducting successful casing and cement jobs. The course uses a process-based perspective that takes participants from initial casing depth and size selection, casing and liner design procedures, casing running practices, planning and executing primary cementing, through remedial cementing and plugging operations.

COURSE GOAL

To enhance the participants' knowledge, skills, and attitudes necessary to build a solid foundation in the principles and practices of designing, planning and conducting successful casing and cement job.

COURSE OBJECTIVES

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

- Select casing sizes and setting depths to achieve well objectives
- Determine casing loads for design purposes
- Design casing properties to meet burst, collapse, and tensile strength requirements
- Conduct casing running operations safely and successfully
- Specify cement slurry properties and volumes to meet well objectives
- Determine best procedures for attaining successful primary cementing
- Conduct stage jobs, squeeze jobs and set cement plugs

WHO SHOULD ATTEND

- Personnel responsible for planning, overseeing, and conducting casing and cementing operations
- Operator and service personnel

COURSE DURATION

5 Working Days

COURSE OUTLINES

1. Casing Design

- API properties of casing and casing couplings.
- Performance properties of casing under load conditions
 - Tension
 - Burst pressure
 - Collapse pressure
 - Biaxial loading
 - Buckling.
- Principles of casing design for vertical, deviated and horizontal wells
 - Setting depth design procedures
 - Casing string sizes, and
 - Selection of casing weight, grade & couplings.
- Preparation of casing programs for different well types.
- Optimization of casing program.

2. Cementing

- Basics of cement
 - Manufacture
 - Composition and standardization.
- Measuring and controlling cement properties.
- Cement additives. Slurry design
 - Wellbore temperatures
 - Retardation
 - Density
 - Filtration control
 - Strength stability
 - Viscosity/suspension
 - Gas migration theory and control
 - Cement job simulation
 - 'Wait-on-cement' time.
- Cementing calculations
 - Primary cementing

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- Plug balancing
- Squeeze cementing.
- Rheology and types of flow
 - Rheological models
 - Types of flow
 - Flow in pipes & annuli.
- Mechanism of mud removal by cement
 - Well preparation
 - Mud conditioning
 - Running casing
 - Mud displacement.
- Cementing equipment.
- Planning
 - Conducting and monitoring primary and secondary cementing jobs.
- Post-job considerations and evaluation.
 - Secondary cementing jobs

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