5-Day Deepwater Well Design and Operational Practices

Agenda
K&M's newest course focusing on identifying and overcoming deepwater well construction challenges! This course is a comprehensive well design and implementation event for Wells Engineers, Superintendents, and Wells Managers. Learn how to identify risks in deepwater well design for both Drilling and Completions and utilize fit for purpose operational practices to increase efficiency and reduce NPT.

Day 1

1. Introduction
Introduction to deepwater operations and what makes these well unique:

- What is Deepwater?
- What is it possible?
- What is different in Deepwater?

2. Geohazards
Description of the main subsurface geological challenges in deepwater, including an understanding of wellbore stability.

- Classic instability and bedding planes
- Narrow mud weight window
- Complex wellbore stability profile
- Ballooning
- Depleted reservoir
- Salt drilling challenges
- Carbonate drilling challenges
- Losses management

3. Hole cleaning
Explanation of hole cleaning fundamentals and the special considerations for deepwater operations.

- Hole cleaning fundamentals
- Main drivers and cuttings behavior
- Specific challenges in deepwater

Day 2

4. ECD, surge and swab management
Explanation of ECD fundamentals focused on the specific deepwater environment.

- ECD fundamentals
- Factors impacting ECD in Deepwater
- ECD management
- MPD and CML
- Understanding PWD
- Swab management in Deepwater
- Heave impact running tubulars

5. Tripping and backreaming

Discussion on what happens downhole during tripping operations and tripping /backreaming procedures.

- Tripping and backreaming fundamentals
- Enabling tripping on elevators
- Tripping procedures
- Backreaming procedures

6. Drill string design

Description of the main considerations to design a drill string in deepwater operations as well as the main failure mechanisms.

- BHA design considerations
- Drill pipe tubulars and connections
- Failure mechanisms and prevention
- Drill string design in deepwater wells

Day 3

7. Torque, drag and buckling fundamentals

Interactive session to understand the fundamentals of torque, drag and buckling applied to typical trajectories found in deepwater wells.

- Torque and drag in Deepwater wells
- Stretch and twist implications
- Actual vs Perceived set down and overpull
- Buckling
- Casing and drill pipe wear management

8. Deepwater operations modeling

Requirements to model the mechanical and hydraulics loads while drilling a deepwater well and what makes modeling deepwater wells different than land or shallow water wells.

- Torque and drag, hydraulics and temperature modeling
- Understanding the integration of the mechanical and hydraulics models
- Hindcasting and planning

9. Hole condition monitoring

Discussion on the steps needed to evaluate hole condition in realtime and appropriate corrective actions.

- Hole condition management and monitoring
- Executing hole condition monitoring

Day 4

10. Running casing, liner and screens

Discuss the specific challenges of running casing, liner and screens in deepwater wells using examples and interactive exercises to understand the main techniques available.

- Design challenges in Deepwater wells
- Overcoming surge
- Overcoming drag in high angle, Deepwater wells
- Running string considerations including slip-crush risk

- Expandable liners
- Packer considerations
- Running screens

11. Cementing

Requirement to plan and place cement successfully including the main challenges and technologies and procedures for a successful operation

- Challenges in Deepwater cementing
- Spacers and displacement
- Deepwater cementing technologies

Day 5

12. Deepwater well design and rig sizing overview

Overview of the main considerations while designing a Deepwater well, including an understanding of the main rig elements and sizing criteria. A case study exercise will be performed to integrate all the knowledge acquired in the course

- Trajectory selection
- Casing design considerations
- Drill pipe selection considerations
- Rig sizing
- Case Study