Horizontal Well Placement and Geosteering - HWP

COURSE

About the Course

Advances in technology have dramatically reduced the time needed to transmit down hole tool responses to those responsible for interpreting the data in the context of the geological play and the reservoir. It follows that geoscience would request course corrections, which would be relayed to the field, and over time take a more proactive role in ‘geosteering’ wells while drilling. However, advances in technology have also dramatically reduced the time needed to drill these wells, and proactively geosteering a well while drilling has come to require more than just an understanding of the geoscience.

Geosteering personnel must now be able to gather and process incoming data and make targeting decisions with little time to spare. Down hole log responses must be understood within the context of the entire bottom hole assembly (BHA), including its limitations, and must incorporate trigonometry (for surveys and targeting) as well as the needs of the intended completion/production plan in order to modify targets for a well while drilling. Last but not least, there needs to be a clear process to communicate back to the field, so that the well site engineer and geologist are properly aligned.

This 5-day course will introduce participants to the general concepts of Geosteering. The first 2 days of this course review BHA components, directional drilling, surveys and other necessary background knowledge at a level appropriate for the course. An example well and exercises introduce the skills needed to geosteer a well. Then the focus changes to interpretation, offering progressively more complex case study examples, and reinforcing log interpretation and early learnings as we review decision points on example wells. Along the way, pinch points are identified, and strategies to manage them are introduced, and for each example, completions intervals are identified.

Target Audience

Geoscientists, engineers, or anyone interested in drilling, operations geology or geosteering

You Will Learn

- The components that make up a bottom hole assembly
- About down hole surveys and the ellipse of uncertainty
- To interpret azimuthal log data while drilling
- Strategies to anticipate problems when steering directional wells

Course Content

1. Components of bottom hole assemblies, and mechanisms for steering
2. Introduction to Down hole surveys (trigonometry)
    - Dogleg severity; Ellipse of uncertainty
    - Sag Correction and Interpolated In Field Referencing (IIFR)
    - Use of At Bit Inclination (ABI) tool
3. Understanding the resistivity tool response in a horizontal well
    - Modeling of offset resistivity logs
4. Introduce the Azimuthal Deep Resistivity (ADR) responses
    - Depth of tool investigation
    - Flat modeling and horizontal profile.
5. Interpret responses from down hole tools, in the context of drilling
    - Through concretions
    - Through a fault
    - Approaching along (and through) a defined contact
6. Review of final drill results before submission to completions
7. Ensuring clarity around decision making and authority when steering
8. Target windows and tracking for geosteering
    - Pre-drill target creation
    - Subsequent modification during drilling
9. Strategies around casing point
    - Landing casing for a horizontal (on target)
    - Drilling out of casing (blind hole)
10. Further case studies demonstrating the complexities of geosteering

Product Details

Categories: Upstream

Disciplines: Geology Well Construction/Drilling

Levels: Foundation

Product Type: Course

Formats Available: In-Classroom

Instructors: Jeff Webber

In-Classroom Format

21 Oct '24 25 Oct '24 - | Course | In-Classroom (in Houston) $4,710.00
