BHA & Drill-String Design Optimisation

Ref: NPT01

Objectives

- Enhance bit-BHA optimisation using Directional [DD01], T&D&B [SI01 + SI03] and Vibration Analysis [SI02]
- Challenge service company’s bit-BHA proposals to improve all aspects of drilling performance
- Optimise directional BHA control to reach directional objectives and reduce borehole tortuosity
- Optimum sensitive downhole tool placement (e.g.: MLWD, Drilling Jar…) and ROP drilling parameters
- Optimise BHA & drill string design for ideal weight transfer in complex or high step out wells

Benefits / Pre-Well Real Time

- Reduce NPT and hidden lost time by comprehensive BHA optimisation (Directional, Vibration, T&D&B…)
- Reduce the frequency of trips and fishing operations caused by stress or vibration induced failure
- Improve performance by smooth borehole, beneficial operation conditions and favourable weight transfer
- Reduce cost & time by optimizing bit-BHA design to achieve a shoe-to-shoe bit run in one shot
- Increase rig drilling envelop and extend horizontal drain limit

Includes

- Bit-BHA - Rock Interaction model with steerability assessment accounting for UCS
- Stiff-string model including unique contact point management with side force and stress calculation
- Complete drill string post buckling analysis including evaluation of weight transfer and lockup
- System frequencies response, vibrations analysis and modal shape determination
- Sensitivity analysis on operating parameters and borehole conditions (e.g. WOB, RPM, hole overgauge…)

Deliverables and Timing

- Earliest result delivery within 16 days after reception of full and usable set of data
- Delivery of final PowerPoint® or written report within 5 weeks, intermediate reports on demand
- Result support from our most experienced Drilling Champions, upon request
- Result presentation in client’s office (optional)
- Real-time support available onsite or remotely (optional)