

Deepwater II examines performance, benchmarking

BENCHMARKING PERFORMANCE

A RIGOROUS APPROACH to performance benchmarking, with documented target objectives, meaningful reports, and critical process analysis to address identified performance gaps, can result in improved operational efficiency and overall better well construction performance thus reducing well construction costs significantly.

Transocean adapted the Shewart Cycle of Plan-Do-Check-Analysis-Act to aggressively address performance improvement. Conventional continuous improvement and benchmarking techniques were utilized.

Initial results showed significant improvement in one of the key steps monitored (tripping drill pipe), ranging from 7% to 30%. Savings in a single well was around 36 hrs equivalent to approximately \$600,000. Translating this savings to a five-well program in an operating year, the savings can be around \$3 million.

Benchmarking Drilling Performance: Achieving Excellence in MODU's Operating Practices for Deepwater Drilling (SPE/IADC 92235) **H Valdez, Transocean.**

PERFORMANCE MODELING

Two years ago Transocean introduced performance and commercial modeling in evaluating different rigs on defined exploration programs. The author will compare predicted and actual performance on a West African exploration sequence.

Transocean recently ventured aggressively into development modeling, and is now able to reliably discriminate rig features and operating strategies that will best serve an operator's development objectives. Influencing factors include water depth, well depth, clustered well concentrations, logistic constraints, environmental factors, rig capacities, etc. Where the contractor has been engaged early enough, it has been able to favorably influence the project through batch sequences, BOP hang-off, wire-line tree running and enhanced off-line activity.

Performance Modeling: Matching Rigs with Programs (SPE/IADC 92251) **C Keener, Transocean.**

BATCH SET OPERATIONS

ConocoPhillips is developing the Magnolia field with a tension leg platform in 4,674 ft of water in the Gulf of Mexico. Three wells were drilled at the eventual TLP site to discover and appraise the field.

Field development plans required drilling an additional six wells at the TLP site where a shallow water flow zone is present. The development plan included batch drilling and casing the shallow water flows (SWF) interval prior to deepening any of the wells to total depth.

The authors will focus on the extensive planning process and the operational aspects of performing a batch set drilling program through a SWF sand in a deep-water environment.

Deepwater Batch Set Operations Through the Magnolia Shallow Water Flow Sand (SPE/IADC 92289) **L F Eaton, R N Williamson, L J Lawrence, S C Actis, ConocoPhillips.**

BEST IN CLASS

Six development wells were drilled in ConocoPhillips' Magnolia field in 2002-2003 from a semisubmersible drilling rig prior to the installation of the TLP. The wells were drilled in two phases, batchsetting all six wells through 20-in. casing followed by deepening them to total depth.

The high mechanical risk index wells targeted multiple reservoirs resulting in complex, designer directional wells with 50-60 degree maximum hole angles.

The authors will examine the application of drilling best practices (BHA design, hole cleaning, torque and drag monitoring) used to deepen and sidetrack the wells to TD.

They will also discuss activities conducted out of critical path and innovations that reduced the number of required trips.

Magnolia Deepwater Development: Striving for Best in Class Drilling Performance (SPE/IADC 92439) **W R Reinhardt, R N Williamson, L J Lawrence, L F Eaton, S C Actis, ConocoPhillips.**

RISK MANAGEMENT

The authors present case studies of

application of risk management to several different areas including intelligent well completions, dry tree completions, active heave drawworks and dual gradient drilling. In all cases the application of risk management reduced risks in terms of both economics and safety.

The authors will discuss background on exploration and development drilling trends; description of risk management as it relates to drilling programs; case studies of application of risk management to drilling applications; and technology; and conclusions and discussion of future applications of risk management.

The Role of Risk Management in Development and Application of New Technology (SPE/IADC 92643) **B A Levett, H Brandt, Det Norske Veritas.**

DYNAMIC POSITIONING

Dynamic positioning system reliability is better than ever before, but it can still be improved. A detailed review of available DP event reports indicated several areas for improvement.

Building on failure mechanics and effects analysis (FEMA) techniques and Transocean's fleet experience, the contractor is preparing Guidelines for Power Plant and Thruster protection and availability.

The guidelines show the design benchmarks for reliability and availability of the systems. They will be used to assess existing systems for upgrade and for the basis of design for any new DP vessel.

Human error accounted for some portion of most DP events. Transocean's assessment showed that the standard industry-wide training for DP operators (DPOs) was not fully adequate.

A series of efforts identified what a DPO needs to know, prepared a DPO development plan to match the needed knowledge, and developed a DPO competency-assessment scheme.

These developments are expected to result in higher basic DP reliability, as well as a better ability to react to problems when they occur.

Improving the Reliability and Availability of Dynamic Positioning Systems (SPE/IADC 92613-Alternate) **P Fougere, Transocean.** ■