Deepwater solutions to be presented at conference

ENGINEERING ANALYSIS

In 2000, Conoco U. K. Ltd. drilled an exploration well in 6,189 ft (1,886.4m) of water in the northern Atlantic Margin, in a location 220 km off of the West Coast of the United Kingdom.

Potentially severe metocean conditions posed a significant challenge to the capability of the DP drillship selected to drill in this environment.

Conoco undertook an extensive engineering program to ensure that adequate rig systems and operational procedures were in place to complete the drilling operation successfully.

This paper will share the methodology used to ensure that the rig equipment and vessel systems matched the needs of the harsh environment operation.

The paper will identify the issues and systems addressed, the basis for engineering analysis, summarize the results of the work, and present an outline for future drilling program requirements.

Methodology for Engineering Analysis for Deepwater Drilling in the Northern Atlantic with a Dynamically Positioned Drillship (SPE /IADC 79805) by **E M Reyna, K Kuchner**, **ConocoPhillips**.

DRILLING CHALLENGES

Once thought to be a last resort for solving unusual problems, the installation of solid expandable tubulars is proving its validity as the first and final solution to common drilling challenges and unexpected events.

Solid expandable tubular technology is quickly shedding its cost-prohibitive reputation by preserving budgets and saving rig time.

The authors describe how a solid expandable tubular solution is economically advantageous as well as a safe alternative when used as a solution for common drilling challenges.

In addition, this paper will discuss how this particular solution set records during installation and how expandable technology continues to evolve and redefine its uses.

Setting a New Standard for Solving Deepwater Drilling Problems (SPE/IADC 79806) by **M B Holland**, **T Sanders, L W Book**, **Enventure Global Technology**; **R N WIlliams**, **W Sanders, S Rohleder**, **ConocoPhillips**.

ULTRA DEEPWATER OFF MALAYSIA

This paper will address all of the planning and logistical issues involved with drilling the first ultra deepwater wells off the coast of Malaysia.

Murphy Sabah Oil recently contracted the Diamond Offshore Ocean Baroness to drill three wells in water depths ranging from 4,300 ft to 6200 ft of water.

Since a moored rig was used for the project long range planning and engineering was required to moor the rig in world record mooring depths without any boats or contractors in the area with ultra deepwater mooring experience.

Drilling the First Ultra Deepwater Wells Offshore Malaysia (SPE/IADC 79807) by **R W Jenkins, D A Schmidt**, **Murphy Sabah Oil Co.**; **D L Stokes, Baker Hughes INTEQ**.

DUAL GRADIENT DRILLING

The benefits of using dual gradient drilling (DGD) technology to drill complete wells in ultra-deep waters have been stated in several papers and industry presentations.

However, a new opportunity to employ DGD to reduce overall drilling costs exists by concentrating on drilling upper hole sections.

The support equipment, rig integration strategies, and deployment methodologies for using DGD in a "top-hole" configuration can differ significantly from a pure, full-function DGD implementation.

This paper presents options for inte-

grating and deploying DGD equipment specifically for use in drilling upper hole sections.

Utilizing this paper as a guide, the authors contend, operators and drilling contractors will be able to consider new field development strategies that include DGD, while minimizing the risk and expense normally associated with new technology deployment.

Dual Gradient Drilling Equipment Integration and Deployment on Rigs for Drilling Upper Hole Sections (SPE /IADC 79808) by **R A Judge**, **Subsea MudLift Drilling Co.**; **R Thethi**, **2H Offshore**.

DEEPWATER DEVELOPMENT DRILLING

The development drilling of Anadarko Petroleum's Marco Polo field utilized several innovative approaches to maximize the project value.

Some of the approaches challenge current industry trends.

These innovations include rig selection, mud system, cement design and casing and wellhead design.

An Innovative Approach to Development Drilling in the Deepwater Gulf of Mexico (SPE/IADC 79809) by **P A Watson**, **E S Kolstad, R E Borstmayer, Anadarko Petroleum**: **T W Pope**, **Halliburton**; **A C Reseigh**, **Transocean Inc.**

ULTRA DEEP DRILLING

The Spa prospect (Walker Ridge 285 #1) was drilled by Conoco in 6,654 ft of water in the Gulf of Mexico.

The goal was to drill a subsalt, directional well to 31,600 ft MD to test upper Oligocene formations.

Extreme operational challenges were encountered that demanded exceptional engineering and execution, including 1,300,000 lbs hookload; setting structural casing; drilling through a salt section; and a decrease in fracture gradient below the salt.

Challenges of Drilling an Ultra Deep Well in Deepwater - Spa Prospect (SPE/IADC 79810) by **S A Rohleder**, **R N WIlliams**, **W W Sanders, G L Paul**, **ConocoPhillips**.

MONITORING HOLE CLEANING

Hole cleaning while drilling extended wells and deepwater wells are both critical issues.

This was the motivation for the special care taken in the design and execution of well 7-MLS-42H-RJS drilled in the Campos basin, offshore Brazil.

This well combined a relatively high lateral departure (2600 m) at 1200 m water depth.

The paper describes field operation, specially focusing on the data gathered by a cutting flux monitor device combined with PWD measurements.

This test represents the first experience for the cuttings flow meter device on an offshore well.

Data analysis highlight critical phases for hole cleaning especially when flow rate was limited by leak-off test results.

A new opportunity to employ dual gradient drilling to reduce overall drilling costs exists by concentrating on drilling upper hole sections. Support equipment, rig integration strategies and deployment methodologies for using dual gradient drilling in a top-hole configuration can differ significantly from full function DGD implementation.

Real Time Monitoring of Hole Cleaning Conditions on a Deepwater Extended Well (SPE/IADC 79812 - Alternate) by **A L Martins**, **A F L Aragao, M B Villas-Baas**, **Petrobras**.

TESTING PERFORMANCE

Since 1996, ExxonMobil has conducted an extensive deepwater exploration program in West Africa.

In an effort to achieve improvement in production testing performance, ExxonMobil's West Africa Drill Team focused on developing enhanced processes and procedures by pursuing key initiatives to deliver quality well test operational results.

Core to these initiatives is the company's Operations Integrity Management System (OIMS) which provides a framework for the structured approach to operational excellence.

Deepwater Exploration Drilling and Production Testing Performance - West Africa (SPE/IADC 79813 - Alternate) by **P C Schuberth**, **T J Akers, M W Walker**, **ExxonMobil Development Co.**