2012 SPE/IADC
Managed Pressure Drilling & Underbalanced Operations
CONFERENCE & EXHIBITION

20-21 March 2012 • Marriott Hotel • Milan

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Continuous Circulation Systems – The Key for Safer and Faster Drilling
Angelo Ligrone, Vice President Drilling Technologies, eni

One of today’s most frequent questions in the oil industry is: is it possible to drill faster and safer? Can we balance the need to meet safety and operating performance? MPD systems along with continuous circulation systems can be a key element to solve this dilemma, in particular in certain drilling environments where high operating costs come along with operating risks that are not negligible. The presentation will provide eni’s perspective about this topic.

Industry experts will examine key points that have not been completely understood about MPD, UBO and its applications. These experts will impart knowledge of the most important things you should know about this technology in specific areas.

- John Kozicz, Technology Manager, Transocean
- Donald Reitsma, Vice President Technology, Schlumberger
- Patrick Brand, Executive Vice President Operations, Blade Energy Partners Ltd.
- Charlie Weinstock, Senior Drilling Superintendent, Chevron

Utilizing MPD To Drill HP/HT Deepwater Exploration Wells
Tom Scoular, Technical Review Manager, Kevin Hathaway, Wael Essam, Karlin Costa, Scott A. Johnson, Andrew W. Phillips, Andy Rawcliff, BP; David Burton, Consultant (SPE/IADC 156912)

A successful use of MPD techniques from a semi-submersible rig in an HPHT drilling operation offshore Egypt is described. Included is a discussion on the MPD techniques and experience developed on jack-up HPHT drilling operations and how these were successfully transferred across to the floating rig operation. The presentation will discuss the rig modifications required to install the MPD equipment on the semi-submersible, including installation of the rotating head in the marine riser. It will also review the operations carried out utilizing MPD techniques, and give examples of how the equipment was used in the drilling of the last 3 hole sections. Some key areas considered essential to the success of this technology on a floating rig in a demanding HPHT environment and the benefits associated with the MPD operation are highlighted.

Case History: PMCD Implemented To Explore a Carbonate Reservoir From a Semisub in Malaysia Results in a Safe and Economical Drilling Operation
Fernando Gallo Zapata, Drilling Engineer, F. Rojas, Atul Singh Bhadaura, Schlumberger; L. Umar, Intan Azian Aziz, A. Hassan, Petronas (SPE/IADC 156905)

@Balance – Schlumberger successfully implemented the PMCD technique from a semi sub to reduce risk and safely reach the exploration target successfully. The case history of this well is presented, including procedures and engineering calculations performed for the planning of the job.

Demonstrating the Value of Integrating FPWD Measurements With Managed Pressure Drilling To Safely Drill Narrow Mud Weight Windows in HP/HT Environment
Ahmed Waguih, Project Manager, Freddy Rojas, Scott Fey, Bramanta Subroto, Greg Garcia, Schlumberger; Lawrence Uman, Intan Azian, Noor Azree, Rahim Ali, Petronas (SPE/IADC 156888)

The process applied to obtain a successful MPD application with FPWD on a HPHT well is outlined: Rig Site Survey on a HPHT Jack-up rig, Training, HPHT / MPD Well Control Workshop, Hazard / Hazop study, Engineering, Execution and procedures, conclusions and recommendations.

Utilized for a Maximum Formation Characterization Output in MENA

The First Conjunction of UBD and Coring Applications in MENA Utilized for a Maximum Formation Characterization Output in KOC: Planning, Execution and Results

The process applied to obtain a successful MPD application with FPWD on a HPHT well is outlined: Rig Site Survey on a HPHT Jack-up rig, Training, HPHT / MPD Well Control Workshop, Hazard / Hazop study, Engineering, Execution and procedures, conclusions and recommendations.
Confidently employing MPD and UBO technologies today worldwide, these industry leaders will discuss how they got it right!

### 16:30 MDP AND FLUID DESIGN
**Session Chair:** Kristin Falk, Senior Manager MPD Control Solutions, Ocean Riser Systems

**A Thixotropic Barrier Fluid Used To Prevent the Commingling of Fluids While Tripping on Managed Pressure Drilling Wells**
Jay Turner, Global Technical Services Manager, Ryan Riker, Randy Lovorn, Halliburton (SPE/IADC 156904)

A brief description of current techniques used for maintaining consistent BHP while tripping including special equipment required. The specific challenges of tripping with a mud cap will be addressed including the application of a barrier fluid to optimize the operation. Characteristics of the barrier fluid including lab data and field data will be provided. A short operational summary depicting the logistical considerations, additional specialized equipment required, and observed results will be attached. General rig site layout will be depicted through photos taken on location as well as samples captured during blending, prior to placing in the wellbore, and upon return to surface.

### 17:00 MDP TRAINING
**Session Chair:** Kristin Falk, Senior Manager MPD Control Solutions, Ocean Riser Systems

**Realistic MDP Training Through Advanced Drilling Simulator**
Fredrik Varpe, Principal Engineer MPD/UBD, Bjørn Risvik, Dag Ove Molde, StatOil; Svein Hovland, Sintef

The contents of the simulator and the different modules contained are presented. Moreover, the added value of using a realistic simulator for planning and training MPD personnel is discussed.

### 17:30 WELCOMING RECEPTION & OPEN EXHIBITION
Salone Washington B

**WEDNESDAY, 21 MARCH 2012**

### 7:30 CONFERENCE REGISTRATION
Foyer

**COFFEE SERVICE & OPEN EXHIBITION**
Salone Washington B

### 8:15 OPENING REMARKS
Salone Washington A
- Dag Ove Molde, *Chair, IADC UBO & MPD Committee, Principal Engineer, Statoil*

### 8:30 KEYNOTE PRESENTATION
Dave Elliott, UBO/MPD Principal Technical Expert, Shell

Confidently employing MPD and UBO technologies today worldwide, these industry leaders will discuss how they got it right!
Near Balance Drilling Benefits Addressed Through a Blowout Probability Model  
Claudio Molaschi, Drilling Technical Leader, Silvia Masi, Fabrizo Zausa, eni; Jean Michelez, Nicola Rossi, Kwantis (SPE/IADC 156911)

A brief description of the technology and the application done (on land and on semi-subs) is given. The focus will be on the risk analysis, the methodology, the results and the advantages of using this tool to mitigate blow out event probability.

Simulator and the First Field Test Results of an Automated Early Kick Detection System That Uses Standpipe Pressure and Annular Discharge Pressure  
Donald Reitsma, Vice President Technology, Schlumberger; Ian Mills, Lone Pine Resources; Zaurayze Tarique, Schlumberger (SPE/IADC 156902)

Simulator and field test results of an automated early kick detection system which evaluates standpipe and discharge pressure while monitoring drilling parameters. Indications from the field test are that the system takes less time to rig up, will be a lower cost, and require less maintenance and personnel compared to using a delta flow method with a high resolution flow meter. There will also be a discussion on further development of the system as well as incorporating choke position during managed pressure drilling operations.

Closed Loop Circulating Systems Enhance Well Control While Increasing Drilling Efficiency?  
Brian Grayson, Product Line Manager Secure Drilling Services, Weatherford (SPE/IADC 156893)

This paper examines the basics elements of a closed-loop circulating system and how this technology is enhancing the safety and efficiency of drilling and completion operations without sacrificing other operational elements.

15:00 NETWORKING BREAK & OPEN EXHIBITION

15:30 LOW PRESSURE MPD APPLICATIONS  
Session Chair: Donald Reitsma, Vice President Technology, Schlumberger

Successful Controlled Pressure Drilling Application in a Geothermal Field  
Essam Sammat, Regional Business Development Manager, Stephen O’Shea, Gareth Innes, Weatherford; Julio Kemenyfy, Darko Piscevic, Geoenergie Bayern (SPE/IADC 156895)

An introduction to geothermal drilling and IADC well classification for the drilled wells is given. Included are the primary objectives of using CPD in this specific field. Planning including modeling, nitrogen and required equipment will be presented with the completion details. Conclusion and summary of the application is also included.

Successful Use of Managed Pressure Drilling (MPD) in Low Pressure, High Temperature, and Deeper Reservoirs in Mexico South  
Erwin Gomez, MPD/UBD Engineer, Marcos Chavarria, Juan Carlos Beltran, Corrado Lupo, Hermogenes Duno, Schlumberger (SPE/IADC 156892)

Proper planning and front-end applied engineering demonstrated in two multi-phase MPD operations the added value of constant bottom hole pressure technique to overcome risks associated with a nuisance gas zone, hole cleaning, holes stability and temperature fluctuations across wellbore profile in multiphase environments. Annular velocity is regarded as the most critical factor affecting hole cleaning condition in high angle wells in the absence of pipe rotation. Also, the presence of a nitrified drilling fluid system modifies the temperature profile across the well hence mud properties and coolant effects changes which lead to additional operational problems.

16:30 CLOSING REMARKS

Unassigned papers of note: The following paper proposals will be included in the conference if a scheduled paper becomes unavailable. In addition, these presentations will be made available in the SPE/IADC conference proceedings, should the author desire so.

Modeling of Drilling Hydraulics for Safe Dual Gradient Operations  
Steve Nas, Vice President Global Well Engineering, SPT Group; Kristin Falk, Øyvind Nistad Stannnes, Ocean Riser Systems (SPE/IADC 156901)

Challenges and solutions related to hydraulics modeling for partially evacuated riser dual gradient systems are presented. Particular emphasis is put on the differences between conventional subsea wells and dual gradient wells during connection, tripping and well control scenarios, and examples highlighting these differences are included.

UB CTD Enhances Production From Low-Permeability Gas Reservoirs  
Shaker Alkhamees, Superintendent, Julio Guzman, Saudi Aramco; Raj Fernandez, Baker Hughes (SPE/IADC 156898)

The Saudi Aramco experience with Under-Balanced Coiled Tubing Drilling technique for re-entering Deep Gas Wells is described. The presentation includes the main drivers for Saudi Aramco, the methodology for selecting candidates and the technology used to overcome the challenges presented by the operational conditions in Deep Gas wells.

Drilling Hazard Mitigation Technology Enables Conventionally Undrillable Prospects To be Drilled With Reduced Nonproductive Time and Increased Operational Safety: Application of Solid Expandable Liners and Managed Pressure Drilling in Algeria Nezla Field  
Fabian Torres, MPD Technical Manager – MENA Region, Marc Saad, Weatherford; K. Kartobi, Sonatrach (SPE/IADC 156907)

The Nezla Field is a faulted anticline that makes the conventional drilling challenging due to the presence of fractured and high pressure formations, representing operational hazards for the drilling process. This adverse condition was observed in the offset wells drilled with problems related to wellbore instability, loss-circulation zones and over-pressured formations leading to kick/loss scenarios that endangered the drilling operations incurring significant NPT. A Drilling Hazard Mitigation (DHM) approach was implemented to offset the impacts of both, deviating from the well objective and drilling plan.

Natural Gas Recycle and Recovery System Dramatically Reduces Drilling Cost and Environmental Impact  
Alek Ozegevic, Engineering Manager Secure Drilling Services, Rich Norton, Weatherford

Underbalanced drilling has typically been limited to utilizing inert gas injection and flaring natural gas produced from the reservoir. The natural gas recycle and recovery system is a highly engineered application that utilizes natural gas from the reservoir for injection and circulation into the drilling fluid stream to create a underbalanced condition in the well bore. Additionally, excess produced natural gas is compressed to a sales pipe line to avoid burning the produced gas so that the drilling cost and environmental impact are both reduced significantly. Recycle and recovery (R&R) system typically takes place with the recovery of return gas from the well for recompersion and reinjection back into the well. The presentation demonstrates the reliability and the repeatability along with the engineering economic analysis for those wells successfully drilled with R&R system in western Canada.

MILAN MARRIOTT HOTEL

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Single Room Euro 190, Double Room Euro 210 per room per night including breakfast and 10% VAT.

The room block will expire on 31 January 2012. After this date rooms are upon availability. Please make your room reservations directly with www.iadc.org or call +31 24 675 2252

EXHIBITORS

Be sure to visit the conference exhibitors. These companies will have representatives available to answer questions and provide information.

• AGR Drilling Services  
• Derrick Equipment Company  
• Drillmec SpA  
• Ocean Riser Systems

• Pruitt Tool Rotating Control Devices  
• Schlumberger  
• SPT Group  
• Weatherford International Ltd

Exhibition space is still available. Please contact IADC for more information: peggy.kersten@iadc.org or call +31 24 675 2252

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