IADC World Drilling: A world of change in tech, HSE, markets

IADC WORLD DRILLING 2005, set for 9-10 June at the Grand Hotel Plaza in Rome covers a gamut of topics that is sure to interest everyone in attendance. The conference will examine the latest technologies, equipment issues and initiatives in downhole tools and drilling methods as well as the latest equipment and new technology applications at the surface. A panel discussion will examine global land drilling that will include viewpoints of drilling contractor executives from around the world.

The conference's sponsors include Gold Sponsor **KCA DEUTAG**, Silver Sponsors **Shell** and **GlobalSantaFe**, and Event Sponsors **Crosco Drilling & Well Services**, **AVA Spa**, **ENI** and **Saipem**.

Technical presentations begin Thursday morning, 9 June, with a session on downhole tools. Topics will include a new casing running tool, advanced drill pipe with streamlined connections for slimhole drilling, and the latest advances in hardbanding technology.

A new casing running tool connects to any top drive and allows the drilling crew to run casing, sometimes without a casing crew present. The tool enhances safety since there is no need for a casing hand in the stabbing board, nor power tongs and additional casing personnel on the rig floor. A case history of the tool on a North Sea well will be presented.

Saudi Aramco and **Total** realized significant drilling performance and economic benefits by utilizing 4-in. drill pipe with advanced design slimhole connections in place of standard 3 ½-in. drill pipe. The streamlined 4-in. drill pipe configuration resulted in successful drilling of longer slimhole intervals.

The latest technology to protect drill pipe and casing will be presented whereby hard banding is performed on a separate "wear sleeve" attached to the drill pipe pin tool joint. When the hard banding is worn off the sleeve, the old sleeve is discarded and a new sleeve is installed at the rig floor without having to lay down drill pipe. Downhole trials of the new sleeve will be discussed.

The challenges and opportunities for land drilling contractors have never been greater. A panel of industry executives will explore the expectations for growth in drilling activity in both new and existing markets as well as the outlook for dayrates, and challenges and issues in HSE, personnel and equipment. Panelists include:

- **Renzo Cesaroni**, Senior Vice President, Business Unit Drilling Operation, **Saipem;**
- **George S Dotson**, President and COO, **Helmerich & Payne IDC**;
- **Ian Kelly,** Senior Vice President**, Precision Drilling International**;
- **Siggi Meissner,** President**, Nabors Drilling International**;
- **Claus Chur**, Managing Director, **KCA DEUTAG**.

Afternoon sessions include presentations on drill bits and equipment.

The development of impregnated bit geometry and diamond matrix materials for drilling medium-hard to hard abrasive formations resulted in reduced cost per meter by over 50% during the course of an 18-month optimization program in Oman utilizing an 8 3/8-in. bit. The presentation will discuss expansion to other bit sizes and field applications in Venezuela, Italy and Oklahoma.

A second presentation on bits will examine a record drilling performance in Alberta, Canada, and will focus on recent drilling improvements through the 12 ¼-in. well section.

ITAG designed and built a light land rig for operation in sensitive European environments that features a compact design that is well-suited for narrow access roads and small drilling locations. The design and construction of the rig will be examined during the presentation.

KCA DEUTAG entered the Russian drilling market with its T-2000 fully mechanized 2,000 hp drilling rig heavily modified to withstand the brutal climate of Western Siberia. The company will discuss the rig's operations during the past two years as well as its experience with other rigs in Russia.

Dynamically positioned drilling rigs are desirable for subsea development and exploratory drilling but use of a DP vessel complicates the emergency disconnect sequence (EDS), especially during development work due to extensive associated completion operations. This presentation will discuss factors affecting and resulting from EDS as well as the impact of equipment failure within the overall system and will identify steps to take to mitigate those risks.

Crane capacity and weather often determine the size of coiled tubing that can be used offshore, leading to operations with less than optimum CT size. One company has developed and commercialized a low cycle fatigue spoolable connector to replace offshore butt-welding to resolve weight issues with CT reels.

Alternate presentations during the Thursday afternoon session includes drilling riser management experience in a well in the very strong North Brazil ocean current. Advanced knowledge of the current allowed the drilling contractor to take a number of steps to identify the risks and carry out a riser analysis to reduce those risks.

Makeup torque for a newly developed threaded riser connection will be discussed, including field results from Unocal's West Senno project in Indonesia. The threaded connections require torque never experienced previously. A new power tong includes a hydraulic gripping system activated by a hydraulic motor/pump combination and works with an independent hydraulic system inside the tong rotor.

Semi-automated pipe handling systems reduce drill pipe wear, are more effective in handling casing and reduce errant equipment damage. Development of a semi-automatic system will be discussed that reduces manual labor and provides properly trained crews time to pay attention to the less physical tasks such as alignment of tubulars for storage and the more frequent use of thread protectors.

Friday, 10 June opens with a session on well delivery that includes presentations on big bore gas wells and slimhole horizontal wells.

Offshore Norway, **Shell** took advantage of the Ormen Lange field's permeability, size and pressure and opted for big bore high flow rate wells. The subsea wells in this field will use 9 5/8-in. tubing for planned flow rates of 10-13 cu m/day. Eight big bore wells are planned followed by another 16 in-fill wells.

Saudi Aramco is optimizing its wells in older fields with slimhole well designs. Seven wells have been drilled thus far

with 5 7/8-in. hole size for single and dual lateral completions with results that show drilling performance is comparable to that of larger borehole sizes, equipment performance. Reliability is good and the approach is promising for the operator's older fields.

The HSE session examines well failures from an HSE perspective, HSE management of change and HSE and drilling operations in Poland. An alternative presentation would examine dope-free connections in Statoil's Snohvit field in the Barents Sea.

Statistic indicate that there are many well failures on the Norwegian Continental Shelf costing the industry several hundred million Kroner per well. The **Petroleum Safety Authority (PSA)** initiated a project two years ago to analyze well problems for different operating companies. This presentation will examine the results of the work to date.

A presentation will be made by the **State Mining Authority Poland** about the organization and the cope of mine supervision in Poland, including supervision over oil and gas extraction. The presentation will also discuss blowouts and hydrogen sulfide release hazards in Poland and provide up-to-date information on the work safety level in the Polish oil and gas industry.

Failure to manage change can be a detriment to both safety and efficiency in drilling operations. This presentation will include a discussion on how **Odfjell Drilling** managed change in several situations, notably during purchases of rigs and production contracts that included transferring employees from the purchased company into Odfjell's company culture and policies.

An alternate presentation will examine dope-free connections in the Snohvit field in the Barents Sea offshore Norway, where regulations prevent harmful chemicals from being released. .

The Dynamic Drilling sessions include presentations on maintaining ECD, through tubing applications and managed pressure tools for methane hydrate production. Presentations will be made on increasing the accuracy of landing horizontal wells and drilling fractured granite with solids-free aphron fluids.

The Continuous Circulation System (CCS) is a new and enabling technology with the potential benefits of eliminating start/stop pressure surges when stopping and starting circulation, continuous movement of cuttings in the annulus and improved drilling fluid management, among other things. Three commercial units have been manufactured.

A presentation will discuss the application of through tubing dynamic annulus pressure controlled (DAPC) coiled tubing drilling to access stranded reserves from the Gannet Alpha platform. The presentation will include a discussion on selecting the drilling technique, the planning stages and the operational and post-operational phases.

The apparatus and methods of managed pressure tools for methane hydrate production could allow the industry to safely and efficiently produce the resource. This presentation will examine the tools needed to make this a practical process and why conventional equipment and underbalanced processes are not practical for methane hydrate production.

Point-the-bit rotary steerable systems significantly reduce errors in perceived borehole position by drilling boreholes with gradual transitions between changes in trajectory. This presentation will examine the method's accuracy, claiming that correlating continuous data with stationary surveys acquired at 90 ft intervals demonstrates that the error is reduced by 90% when compared to the error range produced by conventional drilling systems.

The conference's final presentation discusses a solids-free aphron drilling fluid that was used in a well in Yemen drilled into the fractured granite basement. The well tested at more than 6,000 b/d with negligible clean up.

Thanks go to the program committee for producing the conference. The members included **Sjoerd Brouwer**, **Shell E&P**; **Claus Chur**, **KCA DEUTAG**; **Steve Ganglehoff**, **GlobalSantaFe**; **Pierre Gie**, **TOTAL**; **Saif Al Hinai**, **Petroleum Development Oman**; **Alan Hippman**, **BP**; **Marin Koceic**, **Crosco Integrated Drilling & Well Service Company**; **Cesar Munoz**, **Repsol YPF**; **Bruno Pini**, **Saipem**; **Arne Tillerli**, **Statoil**; **Mark Waltz**, **Transocean**; **Duncan Weir**, **Diamond Offshore**; and **Dominic Cattini** and **Mike Killalea**, **IADC**.

Be sure to visit the exhibiting companies that include **ARNCO Technology Trust Ltd**; **Adyard Abu Dhabi**; **IGS Italia**; **LeTourenau Ellis Williams Company**; **MASI Technologies**; **Rig Survey International**; **Scandpower Petroleum Technology**; and **SIS-SIVAM**.