

# People, Planning, HSE examines environment, safety

## NEW GENERATION LAND RIGS

**HELMERICH & PAYNE IDC'S** fleet of 32 newbuild Flex3 rigs has accumulated 42 rig years of experience with impressive results:

- 70% of the wells have been drilled under the customer's time estimate;
- Average well cycle times have been greatly reduced;
- Record wells have been drilled in several areas;
- TRIR rates have been dramatically reduced;
- Personnel retention has been improved.

These significant gains in productivity and safety are the result of elimination of repetitive manual labor; safety by design; training; implementation of new technology; daily communication; and sharing of learning and performance achievements across the rig fleet. Customers are demonstrating their support for this approach by paying dayrate premiums with the confidence and knowledge of achieving total lower well drilling costs.

*Performance And Safety Gains With New Generation Land Rigs* (SPE/IADC 92482) A Orr, Helmerich & Payne IDC.

## INTEGRATED WELL PLANNING

The authors discuss **ExxonMobil's** approach to designing world-class development wells. To achieve success, ExxonMobil has always treated drilling as a core business. The company creates sustainable competitive advantage by selecting, extending and, if necessary, developing proprietary technology to fill business needs; applying technical and operating expertise to solve drilling challenges; and applying a disciplined approach to make the highest quality drilling investments from available opportunities.

The process begins with designing the right well. The design is driven by a thorough review and understanding of existing data, use of visualization technology for well path planning, and quantitatively weighing well design options through cost versus risk benefit analyses. Incorporating early completion design simultaneously from rock mechanics, fluid inflow, and equipment capability ensures the most cost-effective well considering the full life cycle. The result is an optimized "engineered wellbore" based on engineering fundamentals. The authors will provide examples of field applications.

*How Integrated Well Planning, Technology and Operations Excellence Impact ExxonMobil's Development Well Results* (SPE/IADC 92198) H E Newman, C M Roberts, ExxonMobil.

## ADVANCED SAFETY LEADERSHIP

During discussions between Shell and BP well engineering

managers, it was agreed that to further improve performance, safety had to become personal. Early in 2003 the companies established a joint working group to develop common expectations of safety leaders involved in well engineering activities.

The group comprised drilling, well services and HSE representatives from BP, Shell and key contractors supported by an independent safety consultant.

Over the course of several months the safety leadership expectations were condensed to straightforward and achievable standards of personal safety behavior and communication skills. These built on the industry STEP change Leading for Safety guidelines and were used to develop a two day workshop where participants explore what it takes to be a great safety leader. The program was titled Advanced Safety Leadership (ASL) and has been in place since the start of 2004. As of May 2004, more than 500 of the Shell/BP Well Engineering community have participated. Over 1,100 were expected to have participated by year end 2004.

Feedback from both staff and contractors attending the course has been very positive. Initial metrics suggest the course is strongly influencing behaviors, helping to reduce incident rates. The authors tell why such a course is needed and summarize its contents and delivery.

*Advanced Safety Leadership, A Safety Course Designed Specifically for Well Site Leaders* (SPE/IADC 92585) S J Sawaryn, O C Werngren, BP.

## NEW WATER-BASE MUD

A new water-base mud (WBM) system has been successfully introduced as a high-performance, environmentally compliant alternative to oil-base mud (OBM) on shelf wells drilled in the Gulf of Mexico. Historically, oil-base mud has been the "system-of-choice" on these wells in order to maximize drilling performance and reduce costs. However, environmental constraints, a high frequency of lost circulation and the high unit cost of OBM often negate the cost benefits of its use. Conventional WBM offers the benefits of environmental acceptance, attractive logistics and a relatively low unit cost but generally fail to consistently achieve the drilling performance of OBM.

The frequency of use of high-performance water-base mud (HPWBM) has recently increased in areas such as the Gulf of Mexico. A new high-performance water-base mud (HPWBM) has undergone extensive field testing on very challenging onshore, deepwater and continental shelf wells that would normally have been drilled with oil- and synthetic-base muds. The new HPWBM provided a balance between drilling performance and environmental compliance on these wells. The authors describe the process used to select candidate wells for the HPWBM in lieu of OBM, present case histories detailing the use



**Columbia Natural Resources donated a wellbore to a university in order to produce its own natural gas source to offset rising utility bills. Due to the urban location, the company had to deal with regulatory hurdles, resident opposition and logistical restrictions. SPE/IADC 92647.**

of the HPWBM and provide a performance comparison to offset wells drilled with OBM and conventional WBM.

*New Water-based Mud Balances High-performance Drilling and Environmental Compliance* (SPE/IADC 92367) **W M Dye, Baker Hughes Drilling Fluids; N A Hansen, M J Otto, L Shoults, D K Clapper, R Leaper, Baker Hughes INTEQ.**

## ELIMINATING MAN-RIDING

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Noble Corporation has focused significant efforts on eliminating the need for man-riding in its operations and hoisting personnel only when no other safe alternative exists.

The author discusses the creative techniques that Noble has employed to avoid man-riding operations in select locations as well as its worldwide efforts to improve the safety of man-riding when it is unavoidable.

These efforts include standardizing globally on dedicated man-riding winches and developing strict policies and procedures for use of the winches. The paper also describes the techniques that Noble Corporation's European Division employed to reduce the need for man-riding in select locations and provides statistics on the success of these operations to date.

These practices include installing access platforms to eliminate the need for man-riding above the rig floor; relocating remote equipment to areas that provide access through existing platforms and walkways; and installing special scaffolds and platforms to eliminate man-riding around blowout preventers.

Because of the dramatic results of these operations, and the reduction in both the number and duration of man-riding lifts, Noble Corporation is implementing these practices throughout its entire fleet, further reinforcing its core safety values.

*Eliminating the Need for Man-Riding Operations in Drilling Operations* (SPE/IADC 92556) **M F Cadigan, Noble Drilling Services.**

## URBAN OPERATIONS

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The concept is simple: Donate a wellbore to the local university, through which they can produce their own natural gas to offset rising utility bills. The final result: A successful well that required a tenuous journey through geological identification, regulatory hurdles, resident opposition, logistical restrictions, location stability concerns, drilling surprises and reclamation procedures.

The authors will detail the planning and process that resulted in a successful drilling project in an environmentally sensitive location. In addition to being on the banks of a major waterway, within sight of a state capitol, and adjacent to an office building, the real hurdle was cooperating with a neighborhood that was as close as 501 feet from the wellbore. The project brought together an E&P company and six of its major vendor partners, each donating their products or services to a project that earned strong community support. Working under intense public scrutiny, each part of the drilling and completion process was pre-planned, including noise generation, dust control, spill response, and evacuation procedures. In fact, an observation tent was erected on-site for the purpose of public viewing, an action that proved to be very well accepted by the residents.

As a result, the local university has its own source of energy. More importantly, the industry has a greatly enhanced reputa-

tion in the community of operating in a clean, efficient and professional manner. The authors will journal the steps of the process, outlining a template for future projects in sensitive urban environments.

*Urban Operations: Drilling and Completing a Gas Well on a Downtown University Campus* (SPE/IADC 92647) **D W Spady, Columbia Natural Resources; M Poole, Union Drilling.**

## HIGH PERFORMANCE CULTURE

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Over the past 10-15 years, it has been widely argued that human resources are the sole source of sustainable competitive advantage in an organization.

Translating this to a drilling world, people should no longer be considered a commodity item. Issues such as performance management, training and development, organizational learning, developing a performance mindset, recruitment and selection of staff and appropriate reward systems all affect drilling performance. These issues are often highly interdependent.

The Woodside Energy well-site team has used a philosophy of building relationships, implemented an open-door policy on the rig, motivation through goal setting and an extension of a belief that work should be enjoyable. The offshore workforce has responded by demonstrating consistent industry best performance, essentially due to the way the company manages its employees.

*Developing & Maintaining a High Performance Culture in a Well Engineering Environment* (SPE/IADC 92948-Alternate) **G D Jones, K T Gallagher, Woodside Energy.** ■