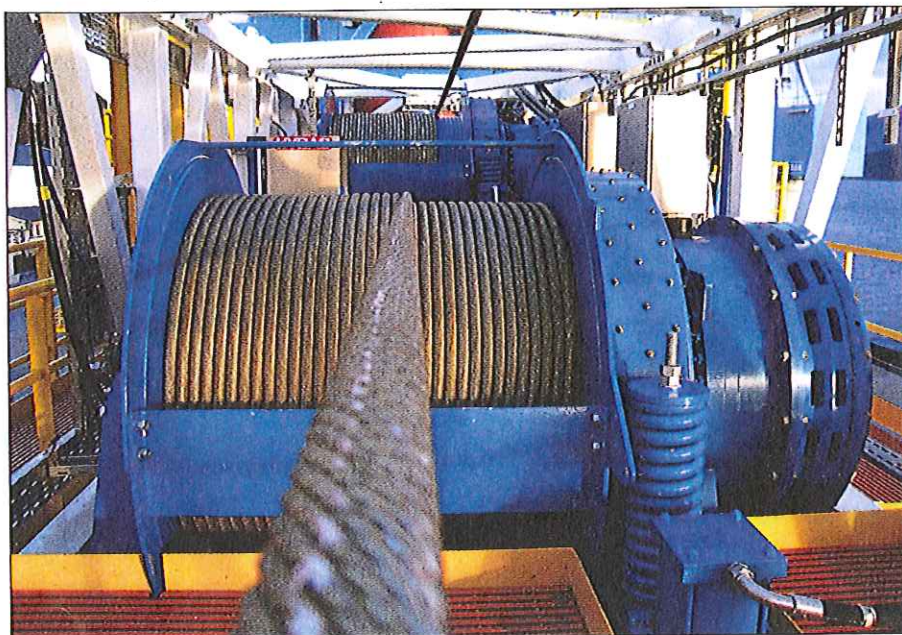


SPE/IADC 119777, "Drilling at the Limit, Can Your Top Drive Handle It?"



SPE/IADC 118890, "Electrical Cranes and Winches for Improved Safety and Better Operational Performance for Use in Extreme Weather Conditions."

form drilling rigs and availability of this technology to others.

SPE/IADC 119292

*Improving the Reliability of Slip Joint Packer Systems.* Thomas Upton, ExxonMobil.

The loss of drilling mud past the primary sealing element of marine riser slip (telescoping) joints has been a recurring source of spills. This paper discusses work processes and equipment arrangements implemented to improve the sealing reliability of slip joint packer systems.

Slip joint packer designs have not changed significantly since they were first introduced in the early 1960s. They were originally designed for use with

water-based mud systems, and typically a minor amount of fluid seepage was relied on to lubricate the packer. In order to achieve complete containment of non-aqueous drilling fluids (NADF), it has become common practice to apply higher closing pressure to the sealing element which has reduced lubricity and led to premature wear of the sealing element and occasional critical failure of packer elements.

In order to contain NADF in the event of failure of the primary packer system, the operator now employs an independent backup pressure supply system that automatically energizes the lower packer in the event of loss of pressure in the primary system. The operator has also established a routine inspection and surveillance program intended to detect slip joint problems before they result in accidental NADF discharges.

SPE/IADC 119470

*Test of a BOP/Riser Connection with an External Inflatable (EI) Inflatable Packer.* David Vaucher, Christopher Parrish and Robert Brooks, TAM International.

In deepwater, a leak detected after latching the lower marine riser package (LMRP) can cost up to a staggering \$6 million in lost rig time. Clearly, there is a need to be able to test the BOP/riser connection for pressure integrity at surface before running to depth with the LMRP. This paper describes a procedure to test for leaks inside the BOP/riser connection at the moon pool. All connections are tested off-line. Once placed inside the BOP above the riser connection, the tool is inflated to a predetermined pressure, and pressure is applied from above or below the tool to test the various component connections. By observing the applied pressure, it is possible to confirm the presence or absence of a leak, as well as its location.

SPE/IADC 118890

*Electrical Cranes and Winches for Improved Safety and Better Operational Performance for Use in Extreme Weather Conditions.* Hege Kverneland, and Arne Austefjord, National Oilwell Varco.

Exploration has moved into more hostile and challenging areas like the Barents Sea, onshore in northern Siberian territories, and in hot desert areas like Sahara and the Saudi Arabian desert. As a result, hoisting and drilling equipment must be designed to operate reliable and safely in extreme temperatures. This may be a problem for hydraulically powered equipment, which are highly temperature-dependant.

A new electrical winch using permanent magnet (PM) motor technology has been implemented on hoisting appliances ranging from small manrider winches to large offshore cranes. This technology using an "inside-out" PM motor integrated in the winch drum was introduced to the offshore market two years ago, in a manrider winch application. It is now adapted to larger horsepower winches.

This paper will focus on the benefits of using electrically powered cranes in extreme-temperature environments. Improved operational performance with higher availability of the equipment, easier installation and maintenance, as well as HSE issues will be discussed. The paper will focus on PM motor technology. It will also discuss the enhanced safety aspect for emergency lowering operations in offshore cranes for a PM motor compared with AC motor.

SPE/IADC 119777

*Drilling at the Limit, Can Your Top Drive Handle It?* Eric Deutsch, WEST Engineering Services.

As deepwater drilling has advanced, the weight expected to be borne by a top drive has increased to levels at or near the advertised load rating of the machine. However, the single load rating number normally associated with a top drive model (e.g., 1,000 tons) is a nominal figure that does not apply to every operating situation. A typical top drive has two main load paths - hoisting and drilling. Hoisting load passes through the elevators and link hanger, while drilling load passes through the saver sub, IBOPs and main shaft bottom end connection. Limitations inherent to rotary-shouldered connections can lead to diminished drilling load capacity vis-à-vis hoisting. Further complicating matters is the fact that the drilling load path is governed by disparate API specifications: 7 and 8C, which provide different calculation guidelines with regard to safety factors and are subject to a certain amount of interpretation.

The result is confusion about how much load a top drive can realistically handle. A 1,000-ton top

drive may not be officially rated to hoist 1,000 tons through its IBOPs. Additionally, API sets forth a different load rating for the swivel bearing, so load rating for rotation differs from overall top drive load rating. This paper discusses the technical aspects of top drive load rating and clarifies the usable load capacity of a top drive in real-world conditions.

## Technical Session: Risk Management & Mature Fields

SPE/IADC 118378

*Under-Rig-Floor Open-Hole Logging in the Gulf of Thailand: Operational Implementation of the Oil Industry's First Simultaneous Open-Hole Wireline Logging and Drilling Operation.* Eric Upchurch, Chevron; Kyle Graves, Apache.

Chevron Thailand has introduced the world's first simultaneous open-hole wireline logging and drilling operation on its tender-assist and jackup rigs. The concept of the new logging technique: The rig drills a hole section and moves to drill another well, leaving the recently drilled open hole available for simultaneous off-line open-hole logging. The rig returns within 2-3 days to run casing after logging is completed. This creates an additional 10% savings per well.

SPE 116335 detailed the design aspects of this logging system. This paper will describe the processes used to implement this system, as well as its inherent risks and rewards. In the case of this new technology, our phased approach to implementation has resulted in a smooth, incident-free introduction to the various rig sites.

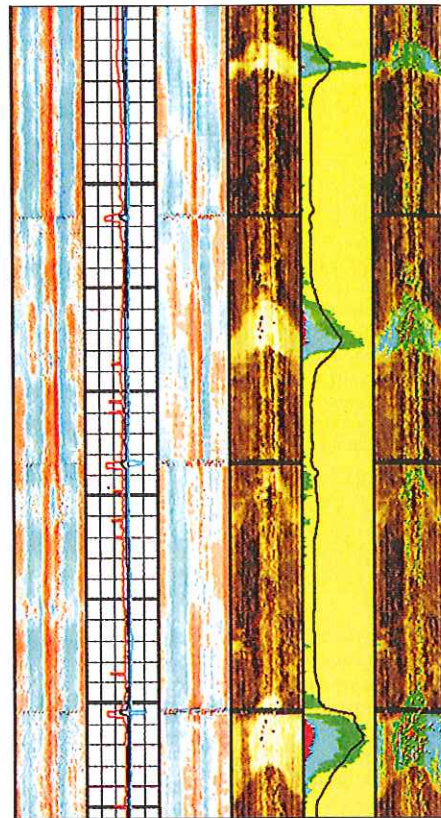
SPE/IADC 119321

*Identification and Qualification of Shale Annular Barriers Using Wireline Logs During Plug and Abandon Operations.* Stephen Williams and Truls Carlsen, StatoilHydro; Arne Guldahl, Schlumberger; Kevin Constable and Nils Eriksen, StatoilHydro.

It has long been recognised that during and after drilling through certain formations, the rock moves inward and begins to close off the well. Normally this phenomenon is considered undesirable. However, it can be put to good use as the mechanism to create an annular barrier behind casing. To extend the life of North Sea brown fields, many well slots on production platforms and subsea templates are being re-used. This involves permanent plug and abandonment of the old well track, and regulatory requirements dictate that double barriers be in place. With the shortage of sufficient traditional cement barriers, these wells often need costly remedial work in order to meet abandonment requirements.

Traditional sonic and ultrasonic azimuthal bond logging provides information on the material immediately behind the casing. Many such bond logs show solid material behind the casing far above the theoretical cement top. Clear correlations of this bonding pattern with shales, known to cause problems during drilling, indicates that the cause of the good bond response is that the shale has sealed off the annular region. Logging and pressure-testing sealed-off zones in a number of wells allowed the bond log response to be qualified for a certain formation. In this manner, it can provide a clear answer of whether shale successfully seals off certain zones and consequently provides a natural annular barrier.

This technique has been employed successfully on over 30 wells.



SPE/IADC 119321, "Identification and Qualification of Shale Annular Barriers Using Wireline Logs During Plug and Abandon Operations."

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