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UNDERBALANCED DRILLING - THE WAY FORWARD

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ABSTRACT

The underbalanced drilling (UBD) Poster Presentation will cover the technical significance of the technology as well as the increasing market applications worldwide (with case histories).

The increased demand for underbalanced drilling (UBD) has stemmed from horizontal drilling's activity increasing the awareness of problems associated with formation damage. In conventional drilling operations, mud invasion reduces the formation permeability around the wellbore. Underbalanced drilling has proven to be an effective measure against the damaging conditions created by conventional drilling techniques. UBD is rapidly becoming a viable alternative to overbalanced drilling (OBD) due primarily to the reduction in formation damage, high

penetration rates, extended bit life and overall efficiencies of a closed surface control system.

Additional benefits include the prevention of drilling losses and hole sticking problems. UBD lends economic viability to such applications as the drilling of fractured gas zones where production may not be possible if drilled overbalanced.

UBD most commonly refers to bottomhole circulating pressures during drilling which are below the natural reservoirs pressure. UBD has very real applications in pressure depleted tight gas and oil reservoirs and may be the only way to drill these formations successfully. Most UBD applications are designed to produce annular drilling pressures just below the static formation pressures. This draw-down condition requires continual monitoring and managing to ensure steady hydrocarbon returns to surface while drilling. The various pieces of surface equipment used to manage and control this hydrocarbon flow will also be included in the poster presentation.

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