Case History
Drilling Optimization

ADT® Optimization Service Helps Ensure Critical Hole Cleaning, Cuts NPT in Long ERD Well
Location: Offshore Brunei

OPERATOR’S CHALLENGE – In order to deliver their production requirements for the year, an operator needed to successfully drill and case a 20,000-foot (6,096-meter) extended reach well located offshore Brunei in 108 feet (33 meters) of water. Because hole cleaning is always a challenge in Extended Reach Drilling (ERD) wells, the operator sought risk management support related to hole cleaning and friction factor monitoring that would ensure the well reached planned target depth (TD).

HALLIBURTON’S SOLUTION – Sperry Drilling services recommended the ADT® Applied Drilling Technology optimization service, which combines specific tools and software programs to address aspects of drillstring integrity, hydraulics management, and wellbore integrity. All ADT data is linked to the InSite® rig information management system and database, enabling real-time analysis as operations progress.

WellPlan™ software was first used to model theoretical minimum flow rates at various rates-of-penetration, with the ADT service then providing hole cleaning and friction factor monitoring using real-time hydraulics and torque and drag applications. These ADT service applications were used on all drilling runs, allowing the ADT service to accurately monitor hole cleaning trends with dynamic changing parameters in real time.

In combination with pickup, rotating and slackoff weights received from the rig, the real-time hydraulics software calculated the dynamic clean hole slow pump pressure and equivalent circulating density (ECD), and plotted the difference between actual and modeled values with pre-determined area fills representing the degree of severity. This provided a clear visual indicator for the downhole safety valve display on the rig. In addition, tracking the differential ECD enabled the well delivery team to actively monitor the effectiveness of circulating successive bottoms up at TD prior to pulling out of the hole, providing an indicator of clean hole that allowed the rig to decide when to begin tripping out of the hole.

With the key insights provided by the ADT service, nonproductive time associated with the consequences of poor
hole cleaning was minimized, and the operator successfully reached TD on this ERD well without any hole problems.

**ECONOMIC VALUE CREATED** – Sperry Drilling’s active monitoring and risk management support for hole cleaning using ADT service real-time models helped the well delivery team make timely decisions in successfully drilling this long ERD well to TD, allowing the operator to complete the well and deliver required 2013 production.