

DrillFact™ Real-Time Monitoring Service

PRECISE DRILLING MEASUREMENTS FOR ENHANCED DECISION-MAKING AND DRILLING PERFORMANCE

OVERVIEW

Improving drilling performance and efficiency is always one of the main objectives for operators. Drilling measurements need to be monitored and analyzed by drilling specialists and adapted accordingly by adjusting drilling parameters to help improve drilling performance and efficiency, and ultimately reduce well time. DrillFact™ real-time monitoring service combines the technologies and expertise offered as part of Sperry Drilling surface data logging solutions to deliver enhanced results above standard mud logging services.

The DrillFact service includes various sensors and software packages with the ability to monitor key drilling parameters. Measurements include hookload, rotary speed, torque, rate of penetration, pit level sensors, various flow monitors, fluid density, and temperature. By combining our real-time service, mud logging experts, and technical expertise, the DrillFact service helps operators reduce well time, minimize drilling uncertainties, and lower costs to maximize the value of their assets in a wide range of drilling environments such as deep water.

FEATURES

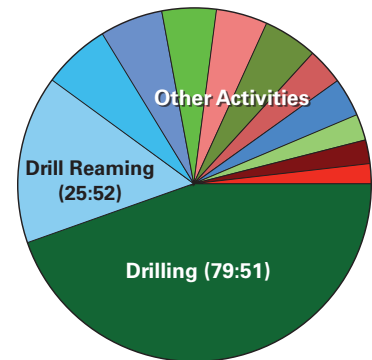
- » Pore pressure trend analysis based on offset well data
- » Kick detection using a suite of sensors, from accurate flow in and flow out
- » EWST™ service, an early warning system that detects abnormal conditions, such as fluid influx or losses
- » Connection Flow Monitor (CFM) software for precise flowback monitoring
- » Smart activity tracker for analyzing time breakdowns of major drilling categories
- » DrillSaver™ III vibration monitoring system, which uses high-frequency measurement of surface parameters to identify damaging or suboptimal drilling conditions – a one-of-a-kind patented technology that has been successfully used worldwide
- » Torque and drag monitoring
- » Hole cleaning, along with equivalent circulating density (ECD) monitoring, via Drilling Fluids Graphics (DFG™) software
- » Mechanical specific energy calculations for drilling efficiency monitoring
- » Automated pit monitoring and fluid gain/loss calculator utilizing “accounting” concept for fluid tracking

BENEFITS

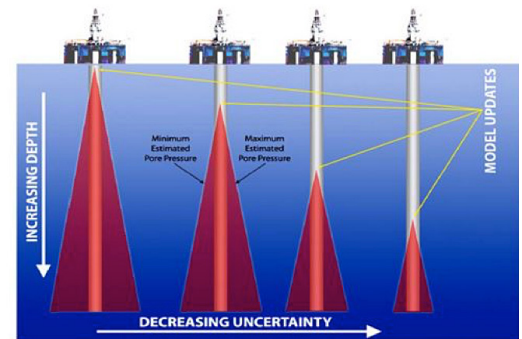
Reduce Well Time

- » Minimizes flat time and nonproductive time (NPT) by monitoring the drilling measurements and adapting to the drilling parameters accordingly
- » Improves drilling performance and efficiency through real-time hydraulics monitoring and analysis
- » Decreases drilling uncertainties and risks by detecting drilling anomalies early and with real-time pore pressure trend analysis

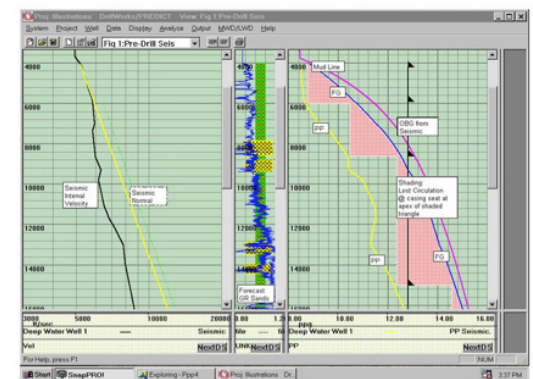
Activity Breakdown in (hrs:min)



Smart Activity tracker analyzes time breakdowns of major drilling categories.



Operators can reduce drilling uncertainty with real-time pore trend analysis.



DrillFact™ real-time services utilize Drillworks® Predict software for pore pressure analysis.

HYDRAULICS MONITORING AND ANALYSIS SERVICE

Hydraulics monitoring and analysis is a component of the DrillFact service that utilizes many of the same sensors mentioned above, along with specialized software to indicate early warnings about the well. This service concentrates on the hydraulics component of the drilling system processes.

This unique suite of sensors is utilized based on accuracy requirements that measure flow in and flow out, and includes highly accurate pit monitoring with an “accounting” type system that enables a check/balance approach to fluid movement.

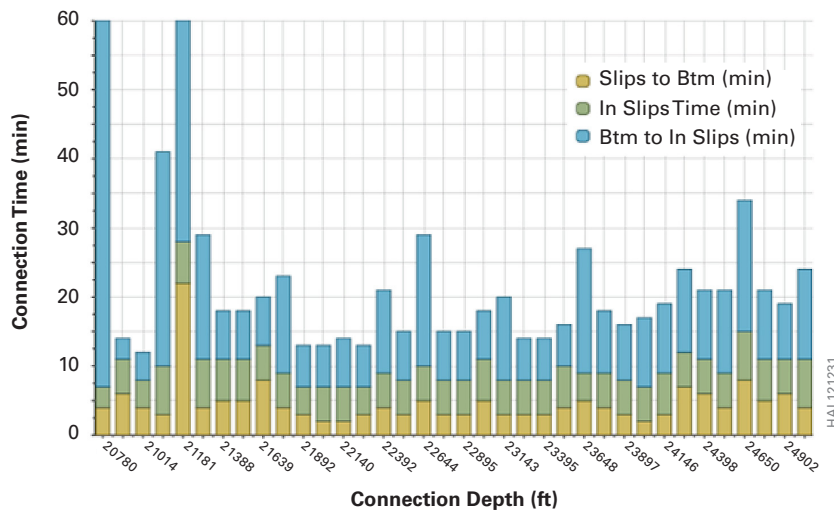
This service uses best-in-class DFG software from Halliburton Baroid for transient hydraulics, yielding precise equivalent circulating density (ECD) calculations and fluid properties.

IMPLEMENTATION

Trained surface data logging specialists employ these tools to communicate and collaborate with operators and to advise them on optimizing their drilling operations and on minimizing risks.

Real-time services can be performed at the wellsite, or from an operator’s office or an existing Halliburton real-time operations center (RTOC). When working remotely, specialists can monitor multiple wells, which is more cost effective than having multiple personnel on well sites.

These technologies and services complement our standard mud-logging services. Detailed pre-drill analysis and engineering modeling can be performed by Halliburton Drilling Engineering Solutions (DES) teams or consulting teams.

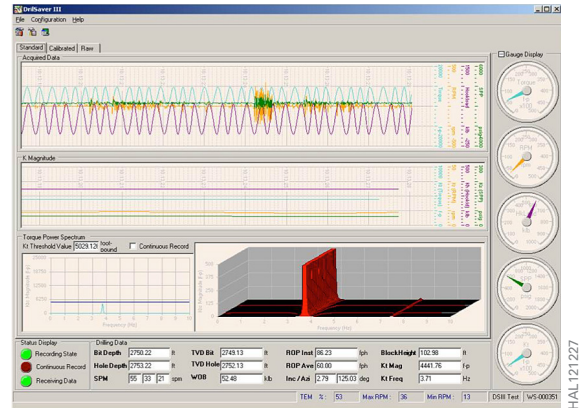


Drill Connect is an application from the DrillFact™ service that provides time breakdowns during connections.

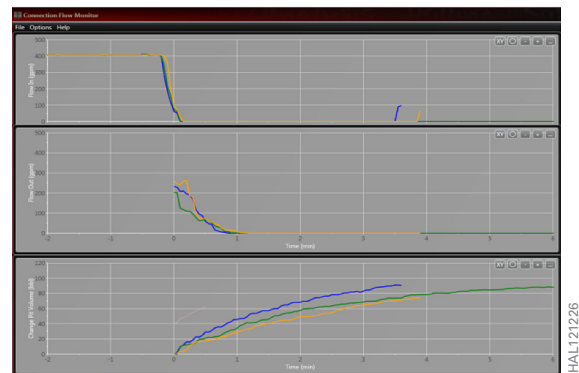
For more information about technical specifications, contact your local Halliburton representative, visit us on the web at www.halliburton.com, or email sperry@halliburton.com

Sales of Halliburton products and services will be in accord solely with the terms and conditions contained in the contract between Halliburton and the customer that is applicable to the sale.

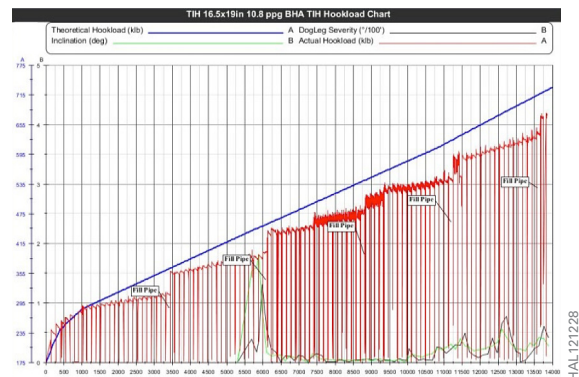
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The DrillSaver™ III system monitors surface parameters.



Connection flow monitor (CFM) software analyzes flowback.



This hookload chart shows theoretical hookload (blue), actual hookload (red), dogleg severity (black), and inclination (green).