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RigHour

Multiwell Drilling Performance Analysis Service

APPLICATIONS

- Collate performance measurements derived from rig sensors and make comparisons across rigs at micro and macro levels
- Identify improvement targets based on high-resolution performance measurements
- Communicate actual drilling performance to rig crews for improving practice

FEATURES

- Automated computation that allows identification of invisible lost time and characterization of technical limits
- Database with large storage capacity
- Computation of KPIs from time-based data and daily drilling reports
- Web-based front end displaying KPIs, plots, and visual controls

BENEFITS

- Improve drilling efficiency
- Identify and quantify areas of potential time saving on drilling operations
- Compare drilling crew performances
- Systematic enforcement of technical limits in various operations
- Consistent measurement and reporting of improvements across drilling rigs

RigHour* multiwell drilling performance analysis service delivers an accurate understanding of drilling operation performance across multiple wells by computing and comparing drilling-specific KPIs. Drilling managers can instantly see the aggregated amount of nonproductive time, as well as invisible lost time, incurred by their entire rig fleet. They can also filter by specific well construction phases to analyze performance and identify potential improvement areas.

The RigHour service uses a database to store high-frequency data streamed from rig sensors, as well as low-frequency data such as daily drilling reports (DDRs) and plans. This information is combined and processed by a computation engine into KPIs, which can be accessed via a customizable web-based interface. Users can visualize selected KPIs and contextual information via plots, charts, maps, or reports, which can then be used to identify areas for performance improvements. Rigs, or rig teams, operating at a higher degree of efficiency can be highlighted, and their experience and techniques shared with other crews.

Dashboard enabling access to the very latest data in a user-friendly and visual way.

A flexible, multiwell service

The accuracy of the performance measurements is ensured by a proven and patented rig activity detection engine, which transforms routinely available surface-sensor data into valuable performance information.

The engineer can then quality assure, load, or extract necessary information from DDRs and program documents, giving context to real-time data. A large variety of data sources, repositories, and formats of rig sensors, as well as daily drilling data, are supported through flexible loaders and quality assurance services. This includes support of WITSML servers, LAS, ASCII, Microsoft Excel, and PDF files. Fully adjustable quality control and computing procedures ensure that high-quality data is acquired across a multiwell environment.

RigHour

Completely customizable

Both the RigHour service and the interface offer high degrees of customization to fit operators' needs and standards. The RigHour service comes with a set of predefined KPIs to assess drilling performance, but custom KPIs can be implemented for any aspect of an operation. In addition, the visualization of data can be customized to support a multidisciplinary environment.

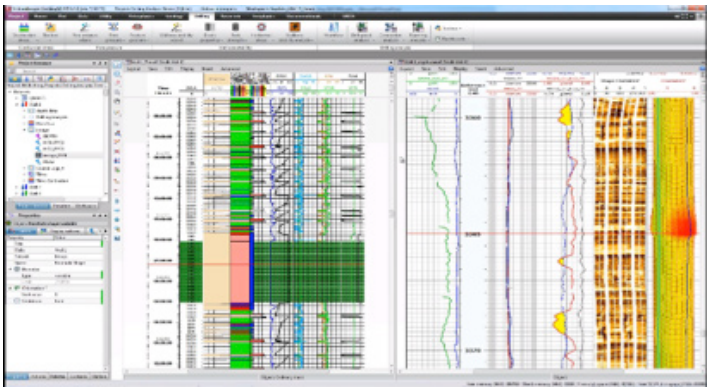
Straightforward deployment

The service uses routinely acquired rig data, along with standard drilling reports and plans, to ensure straightforward deployment. The sensor data is processed into performance information using a rig-activity detection engine, which is combined with drilling plans and the daily drilling report.

Automatically acquired data ensures that performance measurements are unaffected by human bias and errors, providing managers with a more accurate understanding of their operations to help facilitate decisions.

Combining surface with subsurface

Uncertainties in subsurface environments cause over 40% of drilling inefficiencies. Should abnormal behaviour be observed during the drilling process, the RigHour service can be complemented by the Techlog* wellbore software platform and Petrel* E&P software platform for further investigation, enabling engineers to perform root-cause analysis and define subsurface properties affecting drilling performance. This process is significantly expedited as the data has already been prepared and made platform-ready with this service.



Techlog platform drilling performance analysis.

KPI / Phase	BHA M/U and RIH	Trip in open hole	Trip in cased hole	Drilling phase	Reaming phase	Circulation phase	Trip out open hole	Trip in cased hole	BHA POOH and L/D	Casing installation
Total time per stand/joint	X	X	X	X	X	X	X	X	X	X
Connection (slip to slip) time	X	X	X	X	X	X	X	X	X	X
Run (move) time	X	X	X	X	X	X	X	X	X	X
Rotary drilling time				X						
Sliding time				X						
Circulation time		X	X	X	X	X	X	X		X
Reaming time			X	X	X	X	X			
Stationary time	X	X	X	X	X	X	X	X	X	X
Weight to weight time				X						
ROP – rotary, sliding, per circulation hour, etc				X						
Tripping rate	X	X	X				X	X	X	
Casing rate										X

KPIs can be implemented at each phase in the drilling program.

The RigHour data structure.

software.slb.com/services

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