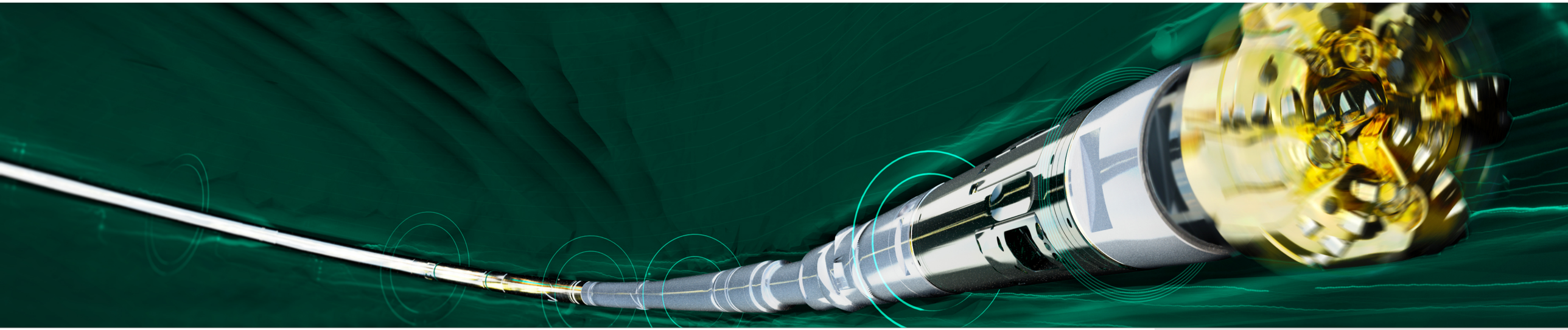


Maximize penetration rates while minimizing drilling risks with an automated, data-driven solution

i-Trak automated ROP optimization service

The i-Trak™ automated ROP optimization service from Baker Hughes helps maximize rates of penetration (ROP) in challenging formations that are prone to causing excessive vibrations and other drilling dysfunctions.

QUICKLY IDENTIFY SUB-OPTIMAL DRILLING AND ACCELERATE YOUR OPERATIONS

The i-Trak service can automatically identify conditions and events that compromise drilling speeds using a variety of downhole tools and surface sensors. Once detected, the service automatically populates a stability heatmap that graphically highlights the conditions impacting ROP—typically a drilling dysfunction like stick-slip or excessive axial, lateral, or tangential vibrations.

These conditions are then automatically displayed for the drilling team along with prescriptive recommendations for the optimal combination of drilling parameters, such as changes to weight on bit and revolutions per minute, to improve ROP and minimize tool damage. Then a member of the team can quickly implement the prescriptive procedures to maximize ROP with minimal vibrations or dysfunctions.

The i-Trak automated ROP optimization service can also pass parameters to advanced drilling control systems (ADCS) directly in closed-loop control scenarios to address issues even faster.

In addition, when drilling an exploration well or initiating a project in a new field, the i-Trak service offers the flexibility to import data pre-loaded with experience from previous runs as well as export data to begin building a digital offset process for future wells.

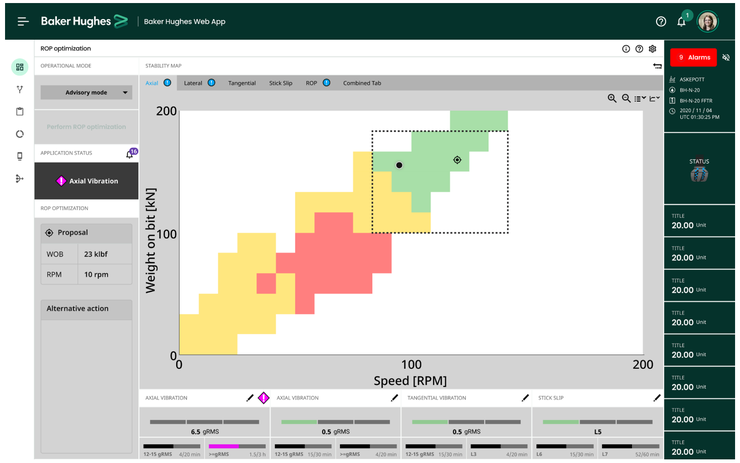
Contact your Baker Hughes representative to learn how the i-Trak automated ROP optimization services can increase penetration rates while extending the operating life of your downhole tools.

APPLICATIONS

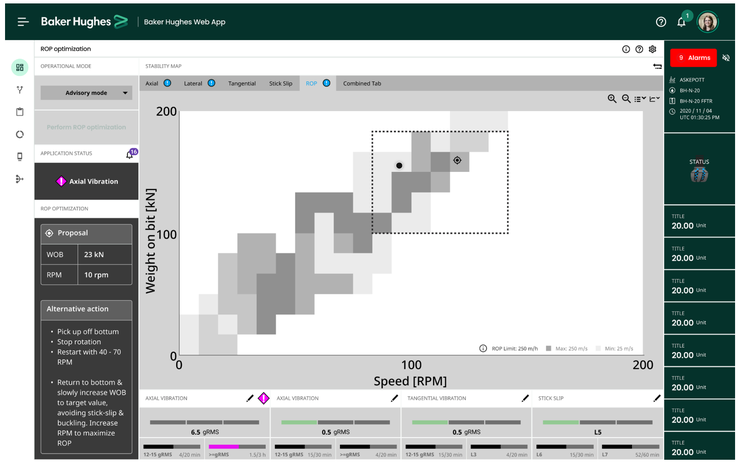
- Drilling operations requiring high ROP
- Formations prone to:
  - Generating damaging vibrations
  - Increasing the risk of drilling dysfunctions

BENEFITS

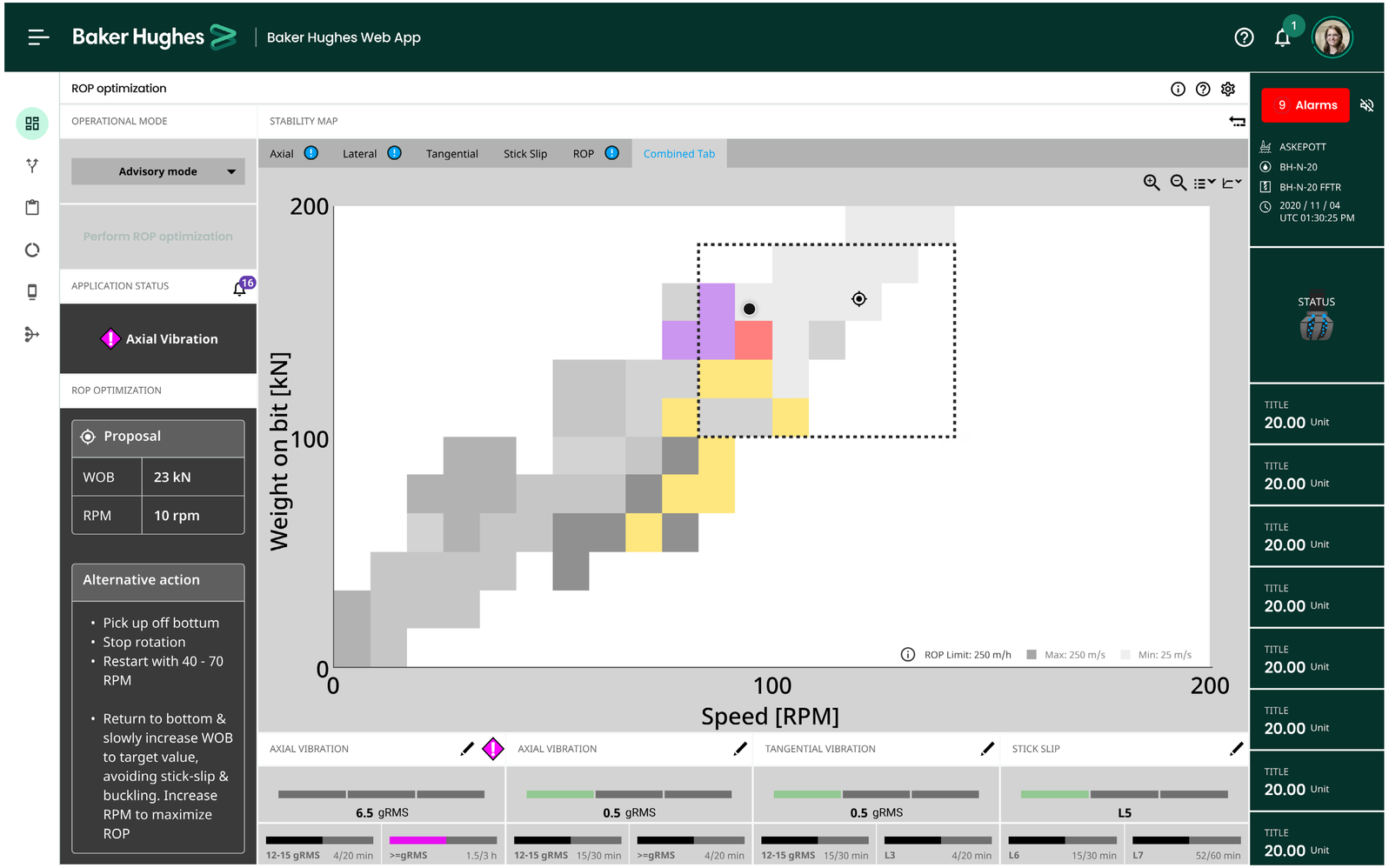
- Decreased risk of drillstring/BHA damage
  - Lower frequency of tool failures
  - Reduced risk of severe damage
  - Extended bit life
  - Minimized drillstring wear/damage
- Reduce repetitive tasks for optimizing ROP
- Increased efficiency with less rig time and lower overall drilling costs



1. Stability heatmaps are pre-populated with AI-selected offset data and augmented in real time with measurements from our industry leading MWD tool suite. This service automatically tracks cumulative vibration statistics, sends preventive alerts to operators, and mitigates dysfunctions. Visualization of optimal WOB and RPM parameters combined with vibration and dysfunction data provide users with a holistic recommendation to minimize vibrations and stick-slips.



2. In parallel, the system leverages offset data to map the optimum parameter coupling of WOB and RPM that will deliver the highest ROP. All recommendations are able to be mitigated by user-configurable minimums and maximums representing rig equipment or downhole-tool limits.



3. Finally, the systems combine the stability maps for VSS and the optimization for ROP in a single display, alongside limits, to recommend holistic, optimum coupling of RPM and WOB. In scenarios where connection to rig control systems are available, these can be sent directly to the rig as control setpoints.

Baker Hughes