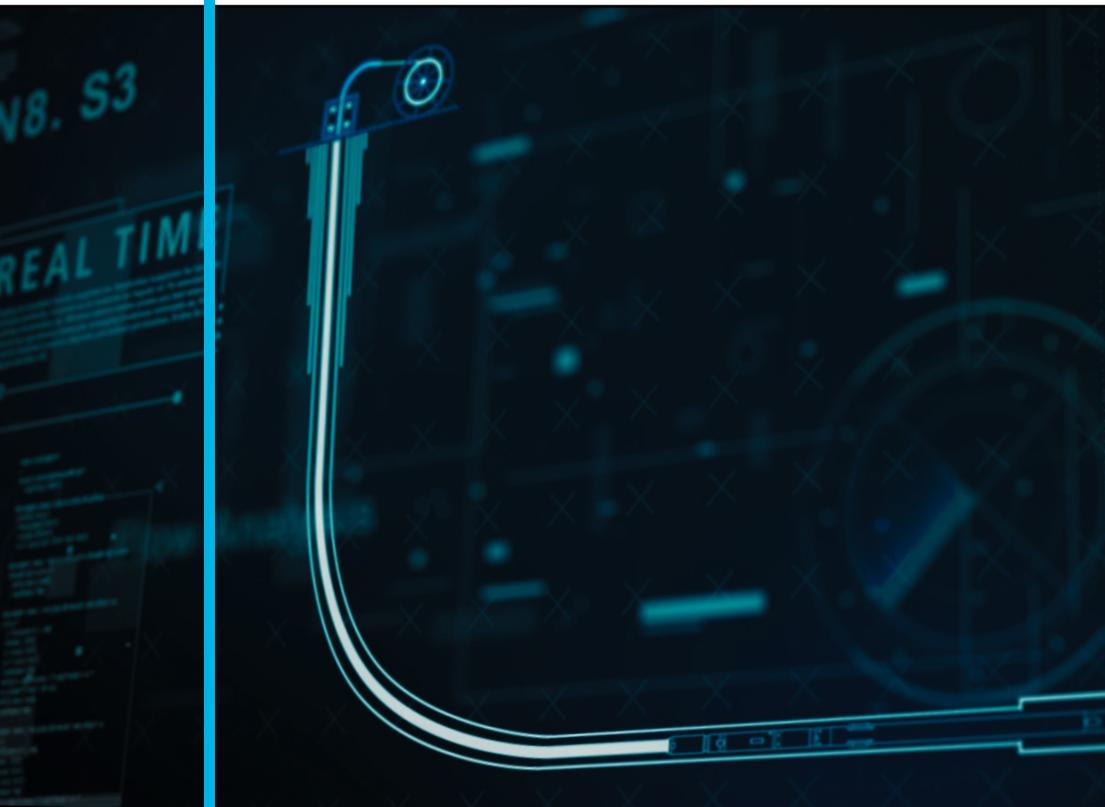


CIRCA Real-Time modeling software

Optimize coiled tubing jobs in real time for safe, efficient, reliable operations



CIRCA™ Real-Time (RT) modeling software uses field data to update operational parameters in models generated by the CIRCA software suite, dramatically enhancing safety, improving efficiency, and increasing certainty of success.

Coiled tubing experts use the CIRCA software suite to design coiled tubing jobs and define operational and safety limits before an operation begins. Models generated by CIRCA software

are loaded into the **JobMaster™ monitoring and analysis system** for use by field engineers on site. During the job, information is collected and monitored using the JobMaster system. CIRCA RT software combs the new data in the JobMaster data stream and dynamically updates the operational model based on changing conditions.

CIRCA RT software offers a level of flexibility and control previously not possible in coiled tubing operations.

Applications

- All coiled tubing operations

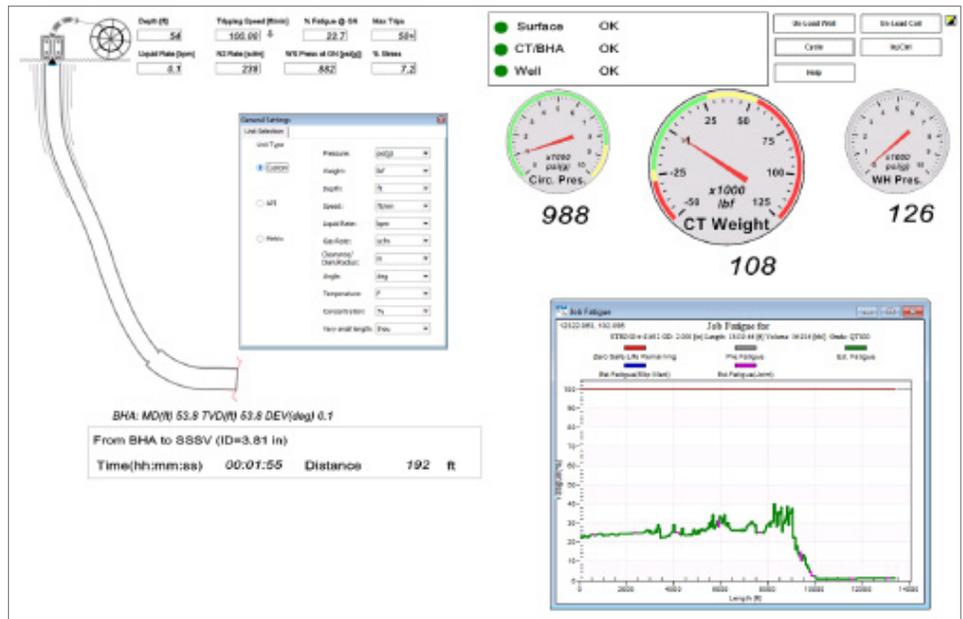
Features and benefits

- Updates CIRCA simulation software models on the job site with real-time data
 - Adjusts injector limits to account for changing downhole conditions
 - Optimizes operation time, pump rates, and material pumped to consistently deliver predictable workovers
 - Dynamically updates safe operating guidelines, situational advice, and warnings based on real-time data
 - Dynamically simulates tubing forces and flow analysis
 - Predicts pressures for two-phase flow, gels, acids, and solids
 - Continuously maps rheology with temperature and pressure measurements
 - Displays a virtual weight gauge clearly delineating safety and operational limits as they correspond to the exact depth and time
 - Continuously calculates the remaining fatigue life of the coiled tubing string
- Built on expandable platform
 - Can be updated modularly to work with various hardware and data feeds
 - Capable of incorporating future monitoring and optimization opportunities

The CIRCA RT display dynamically updates to calculate critical variables like weight gauge limits and gooseneck pressures. It provides alerts and warnings (traffic lights) when thresholds are reached, and logs all information so it can be examined later, if needed. The display also provides a constant visual feed showing coiled tubing position and reel rotation. Included with CIRCA RT, **CYCLE™ pipe management software** provides real-time pipe fatigue monitoring for managing coiled tubing life.

In conjunction with CIRCA simulation software and JobMaster data acquisition software, CIRCA RT offers a smart, design-to-completion solution that seamlessly connects pre-job analysis with real-world variables.

For more information about how you can use real-time data to make coiled tubing operations safer and more efficient, go to BHGE.com/CIRCA or call your BHGE representative



bhge.com

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