

Caribbean

CHALLENGE

- Maintain optimal tool performance in complex BHAs while reducing environmental impact
- Minimize lithium battery usage
- Reduce the volume of hazardous waste disposal

SOLUTION

- Replace select BHA components with fewer or no lithium battery alternatives
- Use iCruise® intelligent RSS with robust downhole generator system
- Integrate iStar® intelligent drilling and logging platform solutions with efficient electronic components
- Implement a hybrid power solution combining battery and generator systems to reduce environmental impact while retaining full functionality

RESULT

- Reduced battery usage by 55% and lithium usage by 54%
- Optimized drilling efficiency while implementing an environmentally responsible BHA
- Cost savings through reduced material usage for BHA preparation and lower disposal costs



Reducing lithium use in drilling operations for a major Caribbean operator

Latest down hole generator-based tools reduce lithium dependency, increase efficiency, and optimize costs

Overview

The drilling team in the Caribbean had the desire to transition to a more efficient Bottom Hole Assembly (BHA). The target goal was to reduce battery use through continuous improvement steps. This shift, incorporating the iCruise® intelligent Rotary Steerable System (RSS) and the iStar® intelligent drilling and logging platform, minimized environmental impact and optimized cost efficiency. The new BHA maintained high tool reliability and drilling precision, achieving 56 wells with incremental reduction in lithium quantity and battery usage.

The transition lowered material procurement and hazardous waste disposal costs and set a new standard for drilling operations in the Caribbean. This approach balanced cost efficiency, operational excellence, and environmental responsibility.

Challenge

The team faced the challenge of transitioning to a more efficient BHA while maintaining high drilling performance. Traditional BHAs relied heavily on lithium batteries, raising environmental and cost concerns due to lithium extraction and hazardous waste disposal. To address this, the team needed to reduce lithium dependence without compromising the precision and reliability of the downhole tools. This required a solution that could power multiple downhole sensors throughout the entire drilling process both with and without mud pump circulation. The team sought a comprehensive approach that balanced performance, cost, and environmental impact, ensuring a successful shift to a low-lithium, generator-powered BHA.

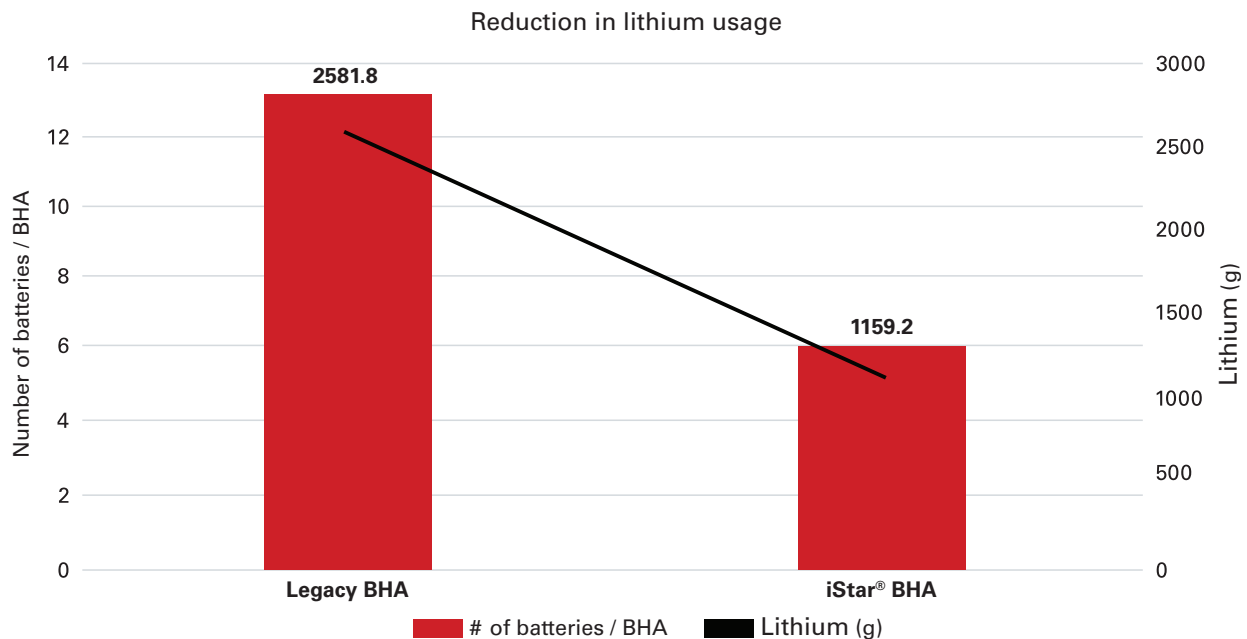


Solution

The team adopted a phased approach to transition to a more efficient BHA. They replaced the battery-powered rotary steerable system with the generator-powered iCruise® intelligent RSS. The BHA included the iStar® intelligent drilling and logging platform services which feature efficient electronic components and non-critical sensors that power off when not circulating. The iCruise® RSS systems were modified to supply power to other LWD tools during circulation. Additionally, the telemetry system was upgraded to the generator-powered PulseStar® high-speed telemetry service, which replaced the previously battery-powered system. The Earthstar® X transmitter was also integrated into the iCruise® intelligent RSS.

Result

The next-generation BHA, featuring the iStar® platform and PulseStar® high-speed telemetry service, resulted in significant operational and environmental improvements. The low-lithium, generator-powered BHA reduced lithium usage by 55% and battery use by 54%, minimizing environmental impact and aligning with global initiatives. This transition also lowered material procurement and waste disposal costs, while maintaining high tool reliability and drilling precision. By adopting this innovative BHA, the customer set a new standard for drilling operations in the Caribbean, balancing cost efficiency, operational excellence, and environmental responsibility.



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