

AMT crown shoe enabled single-trip washover 86% faster than competitor

A customer in the Gulf of Mexico was having trouble recompleting the upper zone of one of its wells after a running tool failed to retrieve a 9 $\frac{7}{8}$ -in. gravel-pack packer. Faced with costly workover options, the customer turned to Baker Hughes, a GE company (BHGE), for the most efficient solution.

BHGE recommended a washover operation. Typically, washovers will take less time and create less swarf than milling. This gravel-pack packer had multiple moving parts made of different and highly durable materials required for the application. It made a washover more challenging as the operation had to be performed over metal-backed sealing and barrel slips.

A competitor's previous washover operation with a similar packer had cost the customer approximately \$500,000 USD per day and took five runs and 31 days to perform.

The customer collaborated with the BHGE well intervention team and shared lessons

learned from the competitor's previous job to save time during this washover operation.

That benchmark study led BHGE to design a custom crown shoe dressed with advanced milling technology (AMT) that included Glyphaloy™ carbide cutting structures.

The shoe, which was deployed to 27,541 ft (8394 m), incorporated an internal stop to land out on the packer-top sub, enabling greater control over the milling depth.

The Glyphaloy cutters were dressed in redundant layers to accomplish the job in less time. They allowed the AMT crown shoe to burn over the gravel-pack packer in a single run that took a total of 33.5 hours to complete—27 days faster than the competitor's benchmark.

That was an efficiency gain of 86%. The packer was successfully recovered on a subsequent run.

Challenges

- Customer was unable to retrieve a gravel-pack packer with a running tool
- A previous washover operation with a similar packer took five runs and 31 days to complete
- The application required burning over metal-backed sealing and barrel slips along with several packer parts that spin and move

Results

- Completed washover in one run, saving operator 27 days compared to a previous competitor's benchmark
- Increased operational efficiency by 86%



This AMT crown shoe, shown before deployment, incorporates several layers of Glyphaloy carbide cutting structures, which are among the toughest in the industry.



The optimized geometry and toughness of the Glyphaloy cutters allowed the customer to perform the operation in a single trip compared to the competitor's five runs.

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