

Improving Well Performance Through Flowback Optimization

CALIBRSM ENGINEERED FLOWBACK SERVICE

LOCATION: PERMIAN BASIN, NEW MEXICO

CHALLENGES

- » Improve short- and long-term well performance
- » Reduce damage to the completion and formation

SOLUTIONS

- » Design a customized flowback plan
- » Utilize CALIBRSM service for diagnostic analysis for real-time flowback optimization
- » Monitor flowback with Halliburton equipment, including a SPIDR[®] high-resolution pressure gauge to monitor surface pressures

RESULTS

- » Higher-than-expected productivity index and initial production were achieved
- » Potential damage-causing practices identified
- » New flowback best practices discovered

OVERVIEW

Historically, methods for post-stimulation flowback have varied across the industry and have been adopted by convention and driven by short-term gain. Until recently, operators and service companies have not focused on the flowback as a way to significantly impact long-term well performance. However, studies have shown that flowback strategies that are too aggressive or too conservative can reduce productivity. Flowback methods that are too aggressive can lead to proppant washout, crushing, embedment, fines migration, and spalling. Conversely, an overly conservative flowback will reduce damage to the completion but fail to capitalize on the well's full potential. Our tailored flowback solution has proven to offer significant economic value by improving both completion effectiveness and deliverability. By analyzing the production response and letting well performance dictate strategy, the flowback can be customized for optimum performance and modified to match the objectives of the operator.



CHALLENGE

A customer in the Permian Basin asked Halliburton to help flow back a well in a new area by utilizing the CALIBR Engineered Flowback service. This new acreage was considered marginal. The customer challenged Halliburton to implement the CALIBR service and compare results with a nearby well that had similar design and completion, which was flowed back by a different service provider.

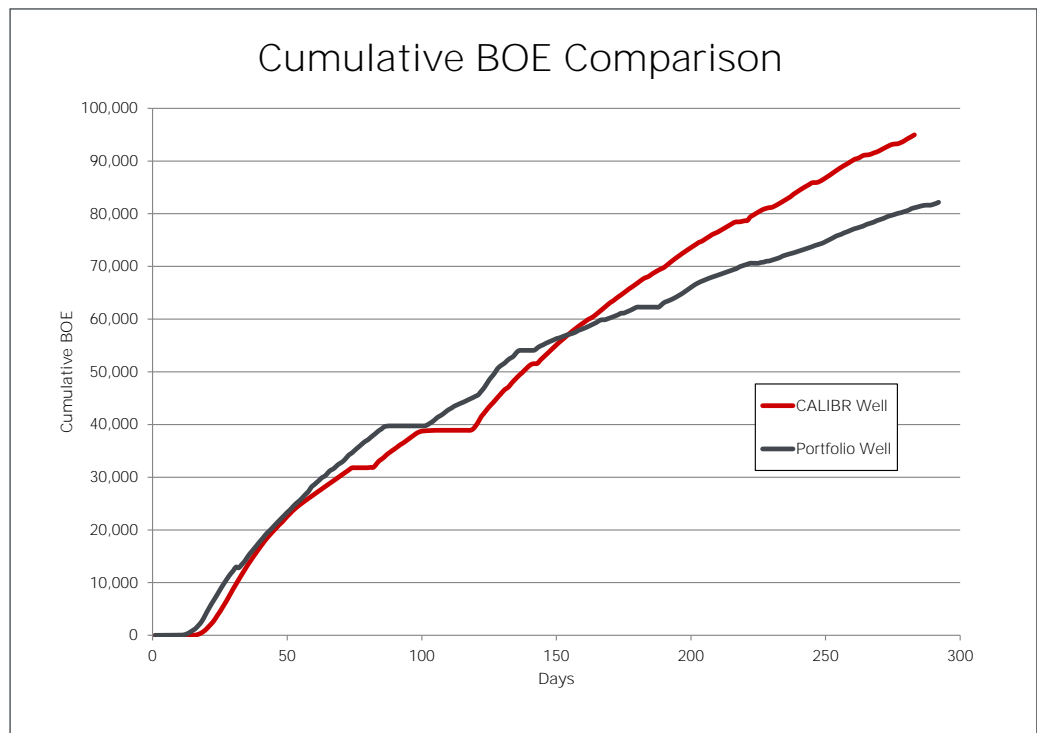
SOLUTION

Halliburton leveraged the expertise of its reservoir engineers and senior field personnel to implement a flowback program specific to the well's characteristics. A full suite of flowback equipment was utilized, along with a SPIDR[®] pressure gauge. The high resolution SPIDR pressure data was used to model bottomhole pressure and detect any potential causes of completion damage. The CALIBR service was employed to continuously analyze changes in well performance. This analysis was used to optimize the choke schedule and manage the

pressure drawdown, allowing the well's response to drive the flowback strategy. The CALIBR service enabled Halliburton engineers to identify and reduce potential damage and to evaluate completion effectiveness.

RESULTS

With the insight and execution of the CALIBR Engineered Flowback service, Halliburton was able to deliver a better well with the highest productivity index of any in the customer's portfolio. The well continued to flow at higher rates, delaying the necessity for artificial lift. The resultant production gain proved to the client that this field was not marginal and was worth further development.



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