

CALIBRSM and SandWedge[®] Services Reduce Sand Flowback

COMBO SOLUTION SIGNIFICANTLY INCREASES PRODUCTION

PERMIAN BASIN, TEXAS

CHALLENGES

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

SOLUTIONS

- » Pump SandWedge[®] additive during stimulation treatment
- » Design a customized flowback plan
- » Utilize CALIBRSM diagnostic analysis for real-time flowback optimization

RESULTS

- » Achieved higher-than-expected productivity index and initial production
- » Identified potential damage-causing practices
- » Significantly reduced proppant flowback

OVERVIEW

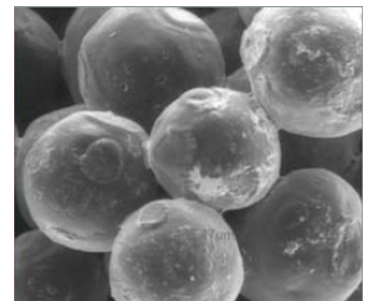
Historically, methods for post-stimulation flowback have varied substantially by area, with locally common practices that may or may not prove to be completely beneficial. While using “what’s worked in the past” may have been successful, it is often times not always effective. Flowback techniques that are either too aggressive or conservative can result in damage near wellbore and an overall decrease in productivity. Aggressive flowback methods can result in proppant washout, crushing, embedment, fines migration, and spalling. Conservative approaches can lead to not achieving the optimum production rate for the well. The CALIBRSM engineered flowback service has proven to offer significant economic value by improving both completion effectiveness and deliverability. The flowback can be customized for optimum well performance and modified to match the objectives of the operator. A new addition to this process is the use of SandWedge[®] conductivity enhancement service to help minimize sand flowback. The SandWedge system includes an additive that is applied to the proppant, resulting in a sticky coating. This coating helps slow down proppant production and maintain the proppant pack around the wellbore, preventing potential loss of fracture width and conductivity near the wellbore.

OPERATOR SEEKS TO MITIGATE POTENTIALLY DAMAGING PROPPANT FLOWBACK

An operator in the Permian Basin had been using traditional flowback services, following its fracture treatments – resulting in large amounts of proppant flowing out of the well. The operator challenged Halliburton to develop a solution to mitigate the proppant flowback that could result in substantial damage near the wellbore. In fact, the amount of proppant collected during flowback caused the operator to question how much proppant was actually left in the fracture. This loss of proppant near the wellbore was potentially restricting the fluid flow into the wellbore. This damage to the proppant pack could result in diminished production.

SANDWEDGE[®] AND CALIBRSM SERVICES OPTIMIZE WELL FLOWBACK

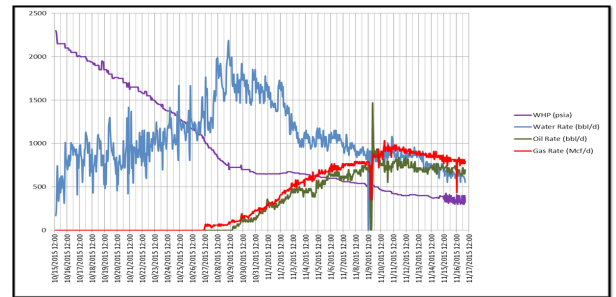
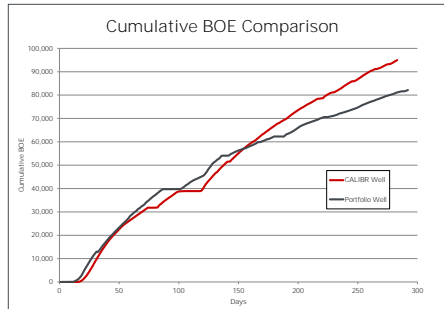
Halliburton recommended a two-part solution: utilize the SandWedge additive to coat the tail proppant during the fracture treatment, and mobilize CALIBRSM engineered flowback service and reservoir diagnostic evaluation to optimize the well flowback. This solution enabled the customer to monitor proppant recovery while optimizing well flowback



Proppant coated with SandWedge[®] additive

COMBO SOLUTION REDUCES PROPPANT FLOWBACK AND INCREASES PRODUCTION

After the flowback service was completed, the customer agreed that the recommendations were instrumental in mitigating proppant production. SandWedge and CALIBR services enabled the operator to achieve optimum flowback production, mitigate proppant production, and reduce formation damage commonly caused by aggressive flowback practices. The operator also recognized a 66 percent reduction in proppant flowback, resulting in a 15 percent increase in BOE/LF in the first year of production.



Flowback optimization improves well performance

66% **REDUCTION**
IN PROPPANT
FLOWBACK

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