

Case study: Permian Basin

ScaleSorb 3 treatment provided long-term scale inhibition

A Permian Basin operator was experiencing declining production rates from wells in the Wolfberry play due to scale. Traditional liquid chemical treatment methods, including acid, chemical squeezes, and backside continuous injections only provided a partial solution, as scale would build up when the well was being completed. Most flowback water in Wolfberry is high in iron, and most liquid scale inhibitors have limited compatibility with iron. Dissatisfied with the current chemical program, the operator sought a reliable, long-term solution.

Knowing the excellent reputation of the Baker Hughes Sorb™ family of solid inhibitors in addressing long-term scale inhibition, the operator contacted the Baker Hughes StimPlus™ flow-assurance services team for assistance. The operator specified that the treatment needed to last more than 10 months and eliminate scaling issues. The treatment also needed to address commingled, multi-interval production.

To ensure proper treatment selection, the StimPlus services team verified the scale composition. Based on this analysis, the team recommended the Baker Hughes ScaleSorb™ 3 solid scale inhibitor—pumped into the formation during the proppant stage—because it can be tailored to the operator's scale-prevention requirements to provide an economical, long-term treatment.

The ScaleSorb treatment has proven highly successful at eliminating scale for this operator after treating more than 120 wells and with eight wells per month still being treated.

The solution implemented by Baker Hughes has eliminated one intervention per well over a two year period, saving the operator \$2 million USD on the 120 wells treated with ScaleSorb 3 scale inhibitor. (The figure for this saving is based on the elimination of interventions only and does not include any additional revenue received from uninterrupted/increased production.)

ScaleSorb 3 inhibitor performance continues to be monitored by field specialists with routine wellhead sampling, which is reported to the operator for evaluation. Ongoing performance evaluations have enabled the StimPlus services team to refine future applications to enhance treatments.

According to the operator's vice president of operations, the only intervention required has been the replacement of a single rod pump and parts, and no scale was found on the downhole equipment. The operator plans to continue completing eight wells per month for the foreseeable future using Sorb inhibitor products. "We have been well satisfied, not only with the products themselves, but also with the service and education provided by Baker Hughes personnel in the yard and on location," he stated.

Challenges

- Commingled, multi-interval production
- Fracturing water source incompatibility
- Limited life of liquid chemical treatments

Results

- Saved more than \$2 million USD over a two-year period
- Provided long-term scale inhibition for 120 wells
- Increased production with limited downtime
- Pumped ScaleSorb 3 scale inhibitor into the formation during the proppant stage of fracturing
- Eliminated remediation requirements
- Monitored chemical residuals continually
- Refined treatments through continuous performance evaluation