

Transcend™ Permeability Enhancers Improve Well Performance

CUSTOM CHEMISTRY SOLUTIONS PROVIDE BIG RETURNS FOR OPERATOR IN DELAWARE BASIN

DELAWARE BASIN, TEXAS

CHALLENGES

- » Improve production in an existing field
- » Maintain standard drilling and completion practices for the area

SOLUTIONS

- » Utilize RockPerm™ service to optimize permeability enhancer
- » Introduce Transcend™ permeability enhancers into standard completion design

RESULTS

- » Improved production by 25 percent as compared to offsets
- » Operator realized ROI of USD 1.5 million through improved productivity

OVERVIEW

An operator in the Delaware Basin utilized Halliburton custom chemistry to optimize its fracturing treatments. The operator was looking for a simple adjustment to its completion design that would result in big returns. By taking a structured approach to design, service, and application, Halliburton was able to provide a solution. Using Halliburton RockPerm™ testing, a customized Transcend™ permeability enhancer package was determined for optimized fluid recovery. Implementing this simple change to the fracturing treatments resulted in improved load recovery and a 25 percent increase in barrels of oil equivalent (BOE) when compared to equivalent direct offset wells utilizing conventional surfactant packages.

OPERATOR NEEDS TO INCREASE PRODUCTION IN DELAWARE BASIN

The operator had a two-well program in the Delaware Basin, and was interested in improving well production in order to justify a continued drilling program in the area. However, the operator did not want to make any drastic changes to either its drilling or completion programs. Further, any changes to the operator's completions program should be simple to implement so as to avoid unnecessary operational complications. In the area, Halliburton was able to refer to 40 offset wells as a comparison. Conventional chemical packages utilized in the area included friction reducers, breakers, biocides, and occasionally surfactants.

HALLIBURTON DETERMINES OPTIMIZED CHEMISTRY TO ACHIEVE INCREASED PRODUCTION

Halliburton designed a targeted approach to meet the customer's expectations of improved production with minimal changes to the completion. To determine the optimized



CASE STUDY

By adding a single additive, Transcend™ 425 permeability enhancer, to the fracturing fluid, testing indicated improved fluid flow through the reservoir. With this one change, after six months of initial production, the well demonstrated a 25 percent increase in BOE as compared to offsets.

chemistry, RockPerm service was employed, as it provides a testing protocol solution based on sound stimulation fluid and reservoir engineering principles. The service is performed by highly-trained technicians in local area labs. This process provides prestimulation scientific testing with actual formation cuttings, reservoir fluids, and stimulation treatment fluids and additives. The testing assesses the fluids and reservoir response to stimulation fluid additives. The result of the evaluation is an optimized stimulation fluid for the well, designed to improve reservoir production.

The operator agreed to provide cuttings and formation fluid samples as key inputs into the RockPerm analysis. Using the proposed stimulation fluids, the RockPerm service was performed to determine an optimized surfactant package to improve fluid mobility in the formation, ultimately resulting in increased production, Figure 1.

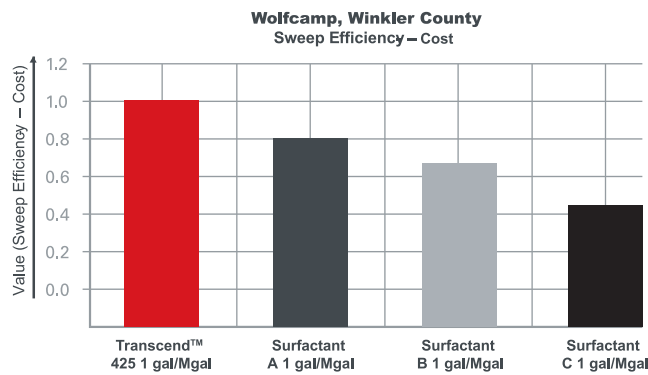


Figure 1: RockPerm™ service test results

ADDING SINGLE ADDITIVE RESULTS IN IMPROVED WELL PERFORMANCE

After testing and analysis were completed, fluid recommendations were determined. By adding a single additive, Transcend 425 permeability enhancer, to the fracturing fluid, testing indicated improved fluid flow through the reservoir. The operator agreed to this simple addition to the completion design, and the results were tremendous. With this one change, after six months of initial production, the well demonstrated a 25 percent increase in BOE as compared to offsets, Figure 2.

Additionally, increased load recovery was observed. By applying robust testing methods through RockPerm service and utilizing the Transcend permeability enhancing chemistry in the fracturing fluid, improved production was realized, thus meeting the challenges set by the operator. The improved productivity resulted in a return on investment (ROI) of USD 1.5 million for this operator.

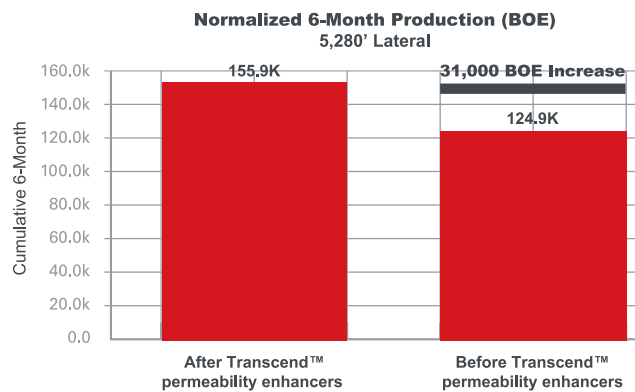


Figure 2: Normalized six-month production as compared to offsets

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