SHOWCASING THE POWER OF PRESCRIPTIVE CHEMISTRY

CLEVELAND SAND

FLOTEK CLIENT PROFILE

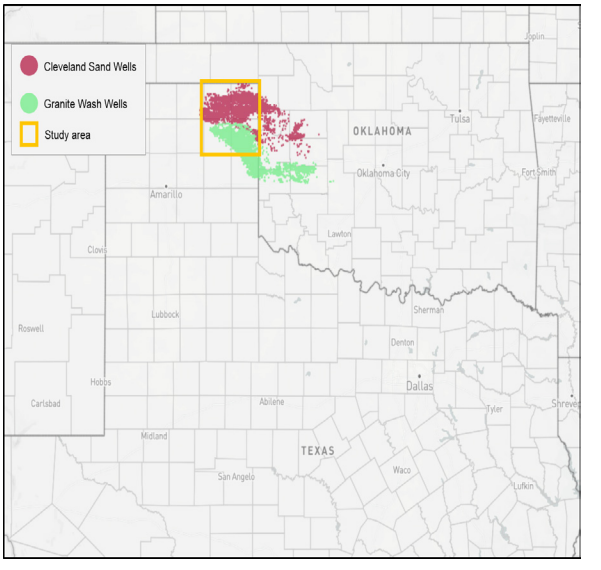
OVERVIEW

An operator with acreage in the Cleveland Sand reservoir within the Anadarko Basin used Flotek's Complex nano-Fluid® (CnF®) chemistry to improve well production and increase the value of their acreage, spanning Lipscomb, Hemphill, Ochiltree, and Roberts counties in Texas.

The Cleveland Sand reservoir is part of a series of complex stratigraphic and structural traps that contain oil and gas accumulations. Reservoir quality and hydrocarbon chemistry varies rapidly across the productive trend. The reservoir interval is considered tight with relatively low porosity and permeability and is associated with conventional traps. Mineralogy, the amount of clay and paraffin content associated with oil production varies across the trend and has an impact on the chemistry that is recommended for completion design.

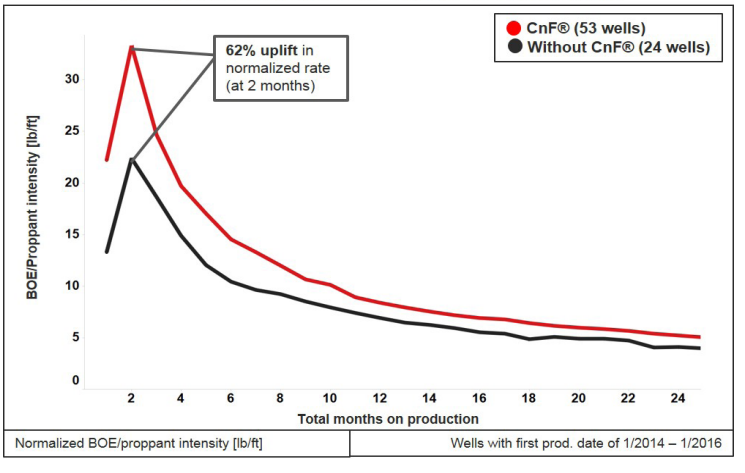
Based on its prescriptive approach, Flotek evaluated the unique geology, chemistry and economics of the well population and prescribed its CnF® technology with high levels of solvency to address the changing characteristics of the reservoir and the relatively high paraffin content of the oil.

Flotek's performance evaluation team studied 77 wells in total, and compared 53 treated wells with CnF® against 24 wells that did not include CnF® chemistry. These wells were placed on production between January 2014 and January 2016.

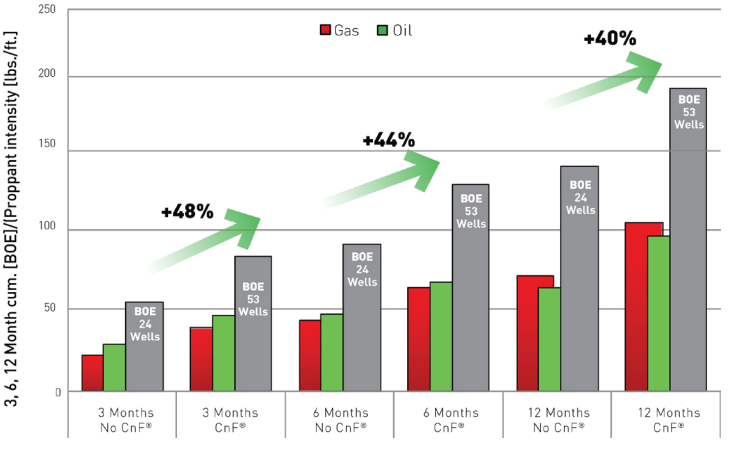


Source: RS Energy Group

AVERAGE PRODUCTION CURVES: CnF® VS WELLS WITHOUT CnF® IN CLEVELAND SAND



CnF® NORMALIZED CUMULATIVE PERFORMANCE UPLIFT IN CLEVELAND SAND



Source: RS Energy Group

RESULTS

Of the 77 horizontal wells analyzed, wells treated with CnF® outperformed the untreated wells over a two-year production period. Wells treated with CnF® had a higher peak production and a somewhat flatter production curve than non-treated wells for the first 24 months of production, when normalized by proppant intensity, a ratio of proppant amount to lateral length. Based on market price of CnF®, payout occurred in less than 3 months.

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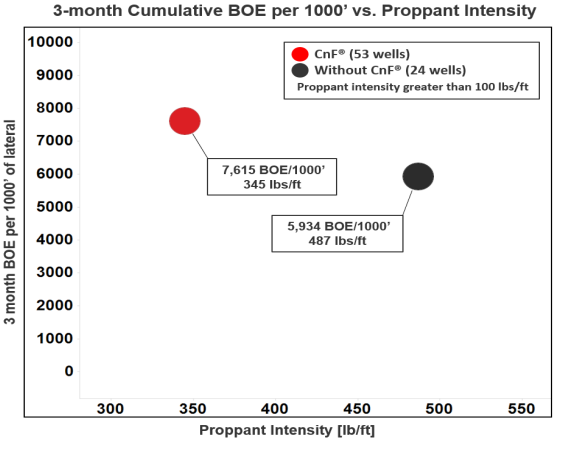
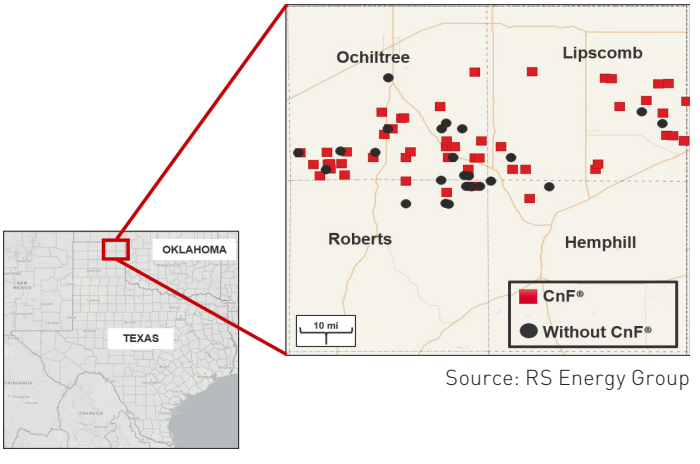
COMPLETION EFFECTIVENESS

Additional production analysis considered the amount of proppant used per foot of lateral length of the well and three-month cumulative production (BOE) per 1,000 ft. of lateral length (shown right). On average, the CnF® treated wells produced more with less proppant – more than 1,600 BOE per 1,000 ft. in the first three months of production while using approximately 140 pounds of proppant per foot less than the non-treated wells.



Source: RS Energy Group



Source: RS Energy Group

DATA SET WELL PLACEMENT

In total, the study area included 77 wells (shown left) in the Cleveland Sand reservoir within the Anadarko Basin and includes wells in Lipscomb, Hemphill, Ochiltree, and Roberts counties in Texas. Fifty-three wells were treated with CnF® and were compared to 24 wells that did not include CnF® chemistry.

OPERATOR

acreage in Cleveland Sand Interval of Anadarko Basin

INCREASE

Over the 24-month study period, CnF® treated wells had higher peak production and consistently out-performed the non-treated wells.