Mangrove Stimulation Design Boosts Production to Top 30 Percentile

Study demonstrates that engineered completion approach to staging and perforation placement adds additional 31 MMcf of gas per 1,000 ft of lateral length.
CASE STUDY: Engineered completion well approach boosts production to top 30 percentile on average, Marcellus Shale

To evaluate the success of the engineered completion approach to staging and perforation placement, a production study was performed in which a group of engineered wells was compared with nearby conventional geometric wells.

Integrated additional data for improved completion design
For the five wells engineered using Mangrove stimulation design, the stress along the lateral section of the well was computed using either the Sonic Scanner platform or the sonicVISION service’s LWD platform. The data collected was used to identify areas of probable high or low stresses, which could then be avoided or targeted, respectively. Perforation clusters were then located to reduce the stress contrast within a given stage.

Improved production in engineered wells
While the initial results showed immediate improvement in production, the study continued to monitor the production. After 18 months, the five engineered wells on average produced in the top 30 percentile, with an additional 31 MMcf per 1,000 ft [305 m] of lateral length on average compared with the nonengineered wells. For a typical Marcellus well of 6,000 ft [1,829 m], this increase represented an incremental increase in revenue of USD 558,000, assuming USD 3 per Mcf for gas.

The 18-month cumulative production (left) and cumulative distribution (right) indicated improved results for the five wells designed with the engineered completion approach.