
Modern Stimulation and Restimulation Techniques in the Haynesville Shale

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ABSTRACT

Haynesville Shale gas production (per day) decreased by half between late 2011 and mid-2016. This resulted from a combination of factors, including steeper declines in production per well and reduced activity related to economic conditions. In 2016, however, drilling activity increased in the Haynesville Shale play as new completion techniques were employed resulting in larger estimated ultimate recoveries (EUR), which increased the economic viability of the play.

The magnitude of the production differences between the early-time and modern wells, suggest that there are significant amounts of bypassed reserves in the early-time completed wells. Restimulation treatments on older Haynesville wells were first deployed in 2015 primarily using diverter as the isolation mechanism. Similar to new completions, restimulation treatments have also shifted in design methodology. Instead of achieving isolation through the use of diversion, the technique of cementing a new smaller production string inside the existing wellbore is now commonly performed. With a new wellbore providing isolation, the restimulation treatment is able to be performed via plug-and-perforate. The perceived production potential of the Haynesville Shale in 2015 rendered this method too costly and unlikely to generate a positive return on investment. However, the production results from the higher-intensity new-drill completions have increased hydrocarbon recovery, and have increased possible production uplift from this recompletion method.

Modern stimulation and restimulation techniques have greatly increased activity in the Haynesville Shale. This presentation will discuss and evaluate the new-drill completion and recompletion techniques currently deployed in the Haynesville Shale.