



SPECTRE frac plug enabled 30% greater pay zone access

A customer working in the Woodford shale in Oklahoma had drilled an extended-reach well to increase pay zone access and planned to complete the well using a plug-and-perf method. But the limited reach of coiled tubing (CT) presented a risk. Maintaining sufficient weight on the milling assembly during plug millouts in the lower area of the long lateral would be challenging.

To eliminate the need for CT intervention in this deep section of the well, Baker Hughes, a GE company (BHGE) recommended installing **SPECTRE™ disintegrating frac plugs**. The plugs, which are constructed of high-strength controlled electrolytic metallic (CEM) material, reliably withstand fracture treatments, and then fully disintegrate downhole in the presence of well fluids. No production-inhibiting plug debris, such as metal slips or ceramic buttons, are left in the wellbore.

The final completion design had a total of 45 stages and included a combination of SPECTRE plugs and composite plugs.

Ten SPECTRE plugs were run first and successfully set in the lower section of the well. The deepest plug was set at 22,224 ft (6,773 m) and the shallowest at 20,091 ft (6,123 m). This section, which would have been too risky to complete using composite plugs, spanned more than 2,100 ft (640 m) of the 7,109-ft lateral.

As the lower stages were pumped, pressure signatures at the surface indicated successful diversion of treatments into each stage. **IN-Tallic™ disintegrating frac balls** were used to seal off the plugs, providing a completely interventionless solution. The remaining upper section of the wellbore was completed with 34 traditional composite plugs which were successfully milled out after fracturing.

The customer's choice to use SPECTRE plugs in this well enabled treatment of 11 additional stages that were beyond the reliable reach of CT in the long lateral. Additionally, elimination of post-frac intervention in the lower stages saved approximately 8 hours of completion time.

Challenges

- Extended-reach wellbore (22,400 ft TMD with a 7,109-ft lateral section)
- Customer wanted to treat as many stages as possible
- Plug millout reliability in the lowermost section of the lateral

Results

- Eliminated CT requirements in farthest depths of the well
- Enabled treatment of an additional 11 stages deep in the lateral
- Accelerated completion time by 8 hours
- Reduced post-frac intervention time and risks

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