

Long String Cemented RapidStage® System with Plug and Perf Saves Time and Reduces Risk

20 SEPARATE ZONES FOR HYDRAULIC FRACTURING

MID-CONTINENT, USA

CHALLENGE

A Mid-Con operator needed to reduce risk, time and cost of their multistage, extended-reach lateral completion.

- » Eliminate coiled tubing toe preparation
- » Mitigate the need for coiled tubing towards the toe of the well
- » Reduce coiled tubing time for milling out plugs
- » Improve overall efficiency

SOLUTION

Halliburton RapidSuite systems and composite plugs provided a combined solution.

- » RapidStart® Initiator toe sleeve and 20 RapidStage® single-entry ball-drop frac sleeves cemented in place
- » Fas Drill® frac plugs for faster millout times

RESULT

This multistage, extended-reach lateral solution was successfully installed and cemented as designed.

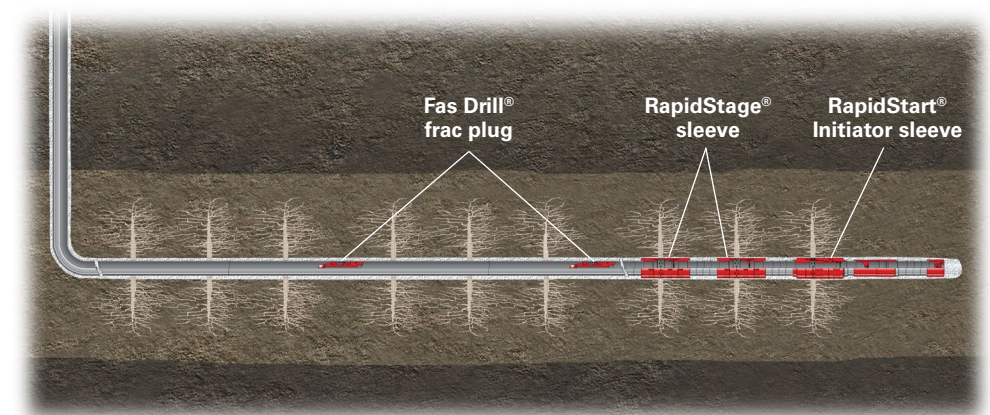
- » Helped eliminate coiled tubing intervention in the ERL, saving time and money
- » Only 10 days of stimulation time
- » Mitigated risk

OVERVIEW

An operator in Mid-Continent, USA was looking to reduce risk, time and cost of their multistage, extended-reach lateral completion in the Woodford shale. Halliburton proposed RapidSuite™ systems and Fas Drill® frac plugs as a combined product solution. The systems were cemented in place, and each zone was stimulated successfully. This combined solution helped eliminate the need for coiled tubing intervention in the extended-reach lateral (ERL), saving the operator time and money, and reducing overall operational risks.

CHALLENGE

In the past, an operator completed the lateral portion of its multistage wells using wireline-conveyed plugs and perforation guns, while the toe of the well was perforated using coiled tubing-conveyed perforation guns. However, when increasing the lateral length, the cost and risk associated with using the traditional method increases. Halliburton's challenge was to provide a multistage completion solution for an extended-reach lateral that would eliminate the need for coiled tubing toe preparation and still provide a viable benefit to the operator.



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SOLUTION

At the toe of the well, Halliburton proposed two RapidStart® Initiator sleeves. These sleeves do not require intervention and are activated or opened by applied pressure from the surface, thus eliminating the need for coiled tubing toe preparation. Next, RapidStage® ball-drop activated, single-entry sleeves were suggested. Halliburton recommended 20 RapidStage sleeves, providing the operator with 20 separate zones for hydraulic fracturing. This solution would address the operator's challenge to eliminate or reduce the need for coiled tubing intervention in the extended-reach lateral towards the toe of the well. Once the maximum number of sleeves were cemented, Fas Drill® frac plugs were run. These reliable composite plugs are highly robust, yet allow for faster millout times. Finally, the Pneumatic Ball Launcher allows each frac ball to be introduced into the flow stream to be pumped down hole without having to shut down the stimulation / frac pumps.

RESULT

This multistage, extended-reach lateral solution was successfully installed and cemented as designed. Once the cement had cured, the RapidStart Initiator sleeve was opened by applied pressure from the surface, achieving the desired injection to stimulate the first zone. The ball-drop process was repeated successfully until all of the RapidStage sleeves had been opened, and each zone stimulated.

The upper 18 stimulation stages were performed with standard plug and perf operations, using Halliburton Fas Drill frac composite plugs to expedite the drill-out process.

Total time of stimulation program was 10 days (6 days or 18 stages for plug and perf section and 4 days or 21 stages for the RapidSuite system section). Upon completion of the stimulation program, the operator milled out the Fas Drill frac plugs without incident, and the balls from the RapidStage sleeve zones flowed back to surface.

Halliburton's customized solution addressed the operator's challenges by providing a solution that eliminated coiled tubing toe preparation, reduced the need for coiled tubing intervention in the extended-reach lateral towards the toe, and provided an economically viable solution, while helping reduce time and risk.

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