

Elk County, PA

RapidStage® ME sleeves help operator increase efficiency in extended-reach laterals

Multi-entry completion system reduces completion cycle time

CHALLENGE

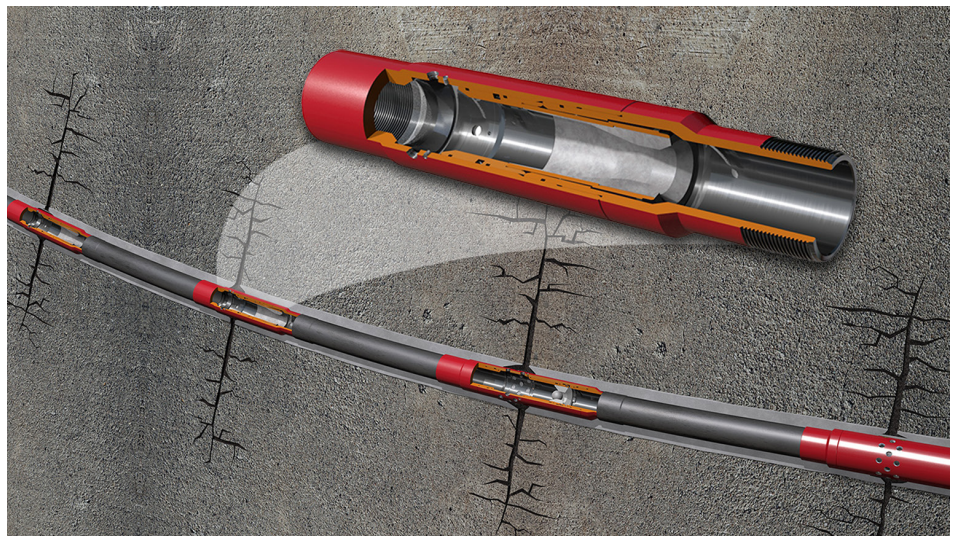
- Identify efficient solution to help reduce overall completion costs in ERL environment
- Drilling-out tools in ERLs

SOLUTION

- RapidStage® ME sleeve systems to help eliminate wireline runs and well swaps
- RapidBall™ dissolvable ball technology combined with larger-ID baffles
- RapidStart® Initiator CT sleeve installed in the toe of well to obtain true casing integrity test and open wellbore

RESULT

- Reduced cycle time by three hours in three stages compared to a zipper frac completion
- No ball or baffle drill outs required, which saved time and money
- Operator successfully tested casing integrity before stimulation without compromise to casing



Overview

An operator in Pennsylvania, sought ways to further improve completion efficiency, reduce cycle time, and eliminate drill out of extended-reach laterals (ERLs). They also wanted to improve average stage count per day. The operator opted to deploy RapidStage® ME (multi-entry) sleeves to eliminate the nonproductive time associated with running plugs and perforating guns on wireline, which saved time and reduced the overall cost of the fracturing operation.

Further efficiency was gained using dissolvable ball technology combined with larger-ID baffles. These combined technologies, helped the operator eliminate the need to drill out the toe of its extended laterals.

Challenge

The operator needed to complete an ERL well with an efficient, cost-effective, low-risk solution. In ERL wells, all operations and their risks are amplified because of the intense nature of the well's conditions. Extreme measured depths lead to higher-risk coiled tubing operations and extended run times

for both coil and wireline units. This can ultimately lead to an inefficient use of time and the increased chance of more costly problems. In ERL wells, the bottom line is that efficiency reduces costs, and traditional completion methods are often unable to excel in these environments.

Solution

In an effort to increase completion efficiency in its ERLs in the northeastern US, the operator chose to run the RapidStage® ME sleeve system in the first three stages of a trial well for a total of four entry points per stage, or 12 sleeves.

Each stage was optimized for both the ball landing signatures and the best treatment design. The system comprised four RapidSuite™ technologies to include RapidBall™ dissolvable balls, RapidStage ME sleeves, RapidStage SE (single-entry) sleeves, and a RapidStart® Initiator CT sleeve at the toe of the well. This system provided an ERL solution through elimination of the need to drill out the baffles before placing the well on production.

The RapidStage ME sleeve system creates a multiple-entry-point completion design with greater efficiency and fewer interventions. Initial communication into the formation is achieved with the RapidStart Initiator CT (casing test) sleeve. The opening of the RapidStart Initiator sleeve allows the RapidBall DM (dissolvable metal) balls to be pumped-down hole to activate the RapidStage ME sleeves.

The ball passes through the baffles of the RapidStage ME sleeves, which exposes ports, and lands on the RapidStage single-entry sleeve.

RapidBall DM self-removing ball technology creates a temporary bottom plug, which dissolves over time. During the fracturing operation, the ball provides a solid plug to direct the fracturing fluid into the open ports of the current stage, and isolates the stages below. Post-fracturing, the ball dissolves to achieve production without having to drill out the ball or baffle.

Through these combined RapidSuite systems, the operator reduced the downtime typically associated with wireline operations. This completion method also extended the lateral, and saved both time and money typically spent on workovers and coiled tubing, which require drilling out of these stages before a well is put on production.

Result

The RapidStage ME system opened as designed, placed 100% of the sand, and achieved the designed job rates. Solid ball signatures were achieved, to verify that all tools were open.

In cooperation with Halliburton, the operator saved more than six hours and reduced the risks often observed in ERLs during millout of conventional plugs.

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