

## Completion Solutions

### Halliburton provides more interventionless fracturing stages in ERD wells

Location: Rocky Mountains, USA

#### Overview

In the Rockies, the Bakken Shale is one of the busiest shale plays. In this play, extended reach drilling (ERD) wells are common as lateral lengths continue to increase and stage count climbs accordingly. This can make it challenging for operators to complete wells using traditional multi-stage completion methods, since wireline operations can be difficult and millout operations can be challenging with coiled tubing. An independent oil and gas operator in the Bakken turned to Halliburton to provide a fracturing sleeve system suited for their ERD wells, while also allowing for more possible fracturing stages than had previously been possible. With this solution, they also needed to ensure effective annular fracturing stage isolation and a trouble-free installation to total measured depth (TMD).



Halliburton worked with the operator to create a new optimized ball-drop fracturing sleeve system capable of stimulating 50 individual stages in the customer's 4 1/2-in. production liner casing size. This enhanced 50+ ball and baffle system would be used in conjunction with Halliburton's field-proven RapidStage® fracturing sleeve completion system. In addition, Halliburton proposed using RapidBall™ DM self-removing frac balls to activate each of the fracturing sleeves, thus helping eliminate the need for post stimulation intervention to ensure well production. The RapidStage system would then be run into the wellbore on a VersaFlex® expandable liner hanger system to enable a trouble-free installation to TMD and use Swellpacker® slip-on isolation systems to provide positive annular isolation of each fracturing stage.

The RapidStage system with 48 individual sleeves and Swellpacker slip-on isolation systems was successfully installed into the wellbore on the VersaFlex expandable liner hanger without an issue. RapidBall DM frac balls were used during the fracture stimulation job to activate each of the 48 RapidStage sleeves, and good surface pressure indications were experienced of the balls landing on the target landing baffles. Each stage was successfully stimulated and once the frac job was completed, the well was put directly onto flowback. During flowback, the well produced as predicted, indicating that the RapidBall DM frac balls were not inhibiting production. Furthermore, no remnants of the RapidBall DM frac balls were seen in the flowback fluid. The operator has now adopted this method of completion for several more wells.

<b>CHALLENGE</b>	<b>SOLUTION</b>	<b>RESULT</b>
Provide more <b>interventionless fracturing stages</b>	<b>RapidStage® sleeves</b> to stimulate the formation	<b>Enabled the fracturing of 50+ stages</b> using RapidBall™ self-removing ball technology
Completing <b>extended reach lateral (ERL) wells</b>	<b>RapidBall DM self-removing frac balls</b> to activate each RapidStage Sleeve	<b>RapidBall DM frac balls</b> slowly degrade, ensuring no intervention is required post frac
<b>Trouble-free installation</b> of the completion in the ERL wellbore	<b>VersaFlex® expandable liner hanger system</b>	<b>48 RapidStage sleeves</b> installed to TMD without issue