

Case Study

LightningPLUS Composite Plug Mills Out Quickly With Minimal Debris

CANADA, DUVERNAY
LIGHTNING COMPOSITE PLUG

An operator working in Alberta's Duvernay formation tested the millout capabilities of several frac plugs in a real-world setting – including the Packers Plus LightningPLUS™ Composite Plug. The operator deployed two LightningPLUS plugs as part of the two-well test and both plugs were successfully milled out in just 5 minutes, producing fine and easily manageable debris.

Challenge

Plug-and-perf completions are one of the most common methods for stimulating cemented multi-stage horizontal wells. As wells become longer, the number of stages and frac plugs in each well continues to rise. Composite frac plugs are commonly deployed in plug-and-perf operations as they are easily milled out and have less debris than previous frac plug designs. Operators continue to look for ways to optimize plug-and-perf completions by identifying frac plug technology that increases pump down speed, while reducing the amount of fluid pumped and millout time.

Solution

The operator was working in the Pembina field of the Duvernay formation and conducted a comparison of the performance of four different composite plugs in two wells. Two LightningPLUS Composite Plugs were deployed in one of the wells as part of the field trial.

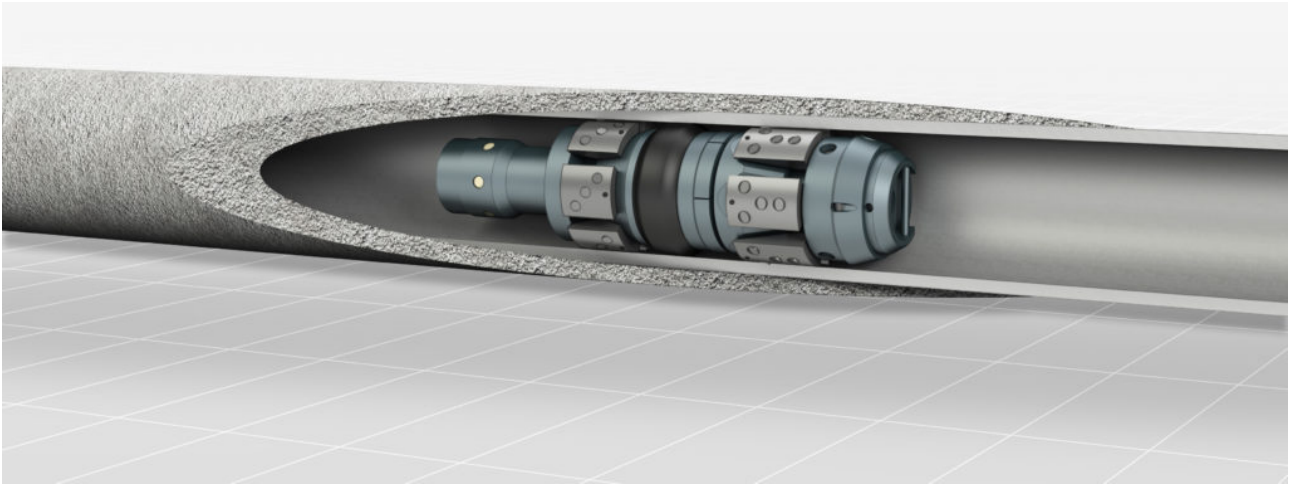
The LightningPLUS Composite Plug is part of the Packers Plus suite of frac plug offerings. These plugs are designed to provide operators with improved efficiency when completing plug-and-perf systems. The LightningPLUS plug is fully composite, which results in finer debris and the short length facilitates fast pump down times. The plug is also uniquely designed with anti-preset and anti-prestroke features.



Results

The LightningPLUS Composite Plugs were run into a well consisting of 5.5-in. 23 lb/ft casing. After the first 29 stages were completed using plugs from two other vendors, the first LightningPLUS plug was deployed using wireline, reaching speeds of 120 m/min, and successfully set at the planned depth of 3,557 m. This was followed by five perforation clusters approximately 30 feet apart and successful stimulation of the isolated stage. A second LightningPLUS plug was pumped downhole on wireline but was unable to set at the planned depth due to a casing washout. The operator decided to push the second plug onto the first LightningPLUS plug and the rest of the stages in the well were abandoned after a casing patch was unsuccessful. During millout, both LightningPLUS plugs were milled out together in an operation that took just 5 minutes and returned small debris particles to surface.

The success of this field trial shows the LightningPLUS Composite Plug provides operators with industry-leading millout times and manageable debris that leaves an unobstructed wellbore, lowering the risk of issues arising during subsequent operations.



Packers Plus is the innovator of multi-stage completion systems, providing field-proven and cost-effective methods for completing horizontal wells with superior production results in numerous formations worldwide. For more information, visit packersplus.com/proven-performance.