Case Study

SF11 Ball recovery reduces well intervention instances and cost

Canada, Montney
StackFRAC HD System

Background

Actuation balls are used in Packers Plus StackFRAC® HD completion systems to enable hydraulic activation of downhole tools and divert stimulation fluid. There are different SF Ball types that vary in material and specific gravity rating. The SF Ball used in a well depends on differential requirements, stimulation fluid type, bottom hole pressure and temperature. Once stimulation is complete, balls are flowed back to surface and production can begin. Balls can also be milled out with coiled tubing.

Challenge

Due to low bottomhole pressure and high gas volumes in the Sunrise field of the Montney, an operator was experiencing low recovery of balls. Low surface recovery can create time-consuming, costly well intervention and cleanout procedures to collect debris. The restrictions must be circulated out to ensure a clear wellbore that won't impede production. To reduce wellbore restrictions and milling operations, complete retrieval of the balls after stimulation is favorable to operators.

Solution

Identifying a need for new technology, Packers Plus designed the SF11 Ball to hold up to extreme downhole environments and have the ability to return to surface during flowback, to eliminate the need for well intervention. The SF11 actuation ball is made with a lightweight metallic alloy and has the lowest specific gravity rating of all SF Balls. This innovative actuation ball is engineered to withstand pressure of 12,000 psi, while also providing superior flowback potential.

Results

The efficiencies of the SF11 Ball were put to the test by the operator in the Montney formation. With previous experience using ball and seat completions, the operator's average flowback return on wells during the 6 months prior was only 28%. However, the operator had great success with the SF11 Ball, dropping 27 balls in a 28-stage stimulation in 3 days with the immediate flowback and notable return of 25 out of 27 balls, effectively eliminating the need for the costly well intervention process. The high recovery rate indicates that the ball design and low specific gravity rating is optimal for flowback and can achieve comparable operating

requirements to heavier actuation balls.