An operator in the Bakken shale formation in the Williston basin of North Dakota wanted to complete a horizontal multistage frac job with an extended number of stages as efficiently as possible. Baker Hughes recommended using the FracPoint EX-C™ multistage fracturing system because of its ability to complete many stages while providing nonstop fracturing operations.

Recent studies have shown that over a period of 3–6 months, initial production is virtually the same whether you use a plug-and-perf style completion or a FracPoint-style completion in openhole applications in the Bakken. During the fracturing process, plug-and-perf completions require the rigging up and rigging down of wireline and pressure pumping between stages, so the more stages that are completed, the more nonproductive time there is.

This well was horizontal with 20,000 ft (6096 m) of total depth, which is common for wells in the Bakken, and pushes the limits of the wireline and coiled tubing that are required to run plugs, perforate, and mill out plugs. In this scenario, the FracPoint system proved itself to be much more efficient during fracturing.

The FracPoint EX-C system incorporates ball-activated frac sleeves that enable multistage hydraulic fracturing for an extended number of stages. A patented ball seat provides mechanical support to the ball during pumping operations, allowing for 40 total stages using ball and ball seat increments of \( \frac{1}{16} \) in. Even with so many ball and ball-seat combinations, with only minute differences in diameter, standard drifting and identification processes for the ball and ball seats within the FracPoint EX-C system’s operating procedures enabled an accurate installation.
The Baker Hughes REPacker™ openhole packers provided annular isolation. These reactive-element packers were run between the frac sleeves to provide stage isolation for the frac treatment. These packers are simple and did not require running tools or specialized personnel to set them. When the completion string reached depth, an activation fluid was circulated around the packers and they set over the appropriate amount of time.

Baker Hughes successfully installed a 40-stage openhole completion system in this horizontal well with a vertical depth of 10,000 ft (3048 m) and a lateral length of 10,000 ft, marking the most individual stages ever performed in a single lateral using a ball-activated frac sleeves/openhole packers completion system. The increased efficiencies gained from using the Baker Hughes FracPoint EX-C multistage fracturing system allowed more stages to be hydraulically fractured more efficiently, thus reducing the time it took to bring the well on production.

The nonstop fracturing operations led to time and cost savings for the client. Total pumping time was 1.2 days compared to the 6.2 days it would have taken to do a plug-and-perf job, a time savings of 5 days. On this job, the FracPoint EX-C system proved itself ideal for unconventional plays that require fast, accurate, and reliable multistage isolation and stimulation.

References

Days Saved with the Baker Hughes FracPoint System

Sources
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