

Case History

Swell Technology™ Systems

Brigham Exploration Company Maximizes Zonal Isolation Benefits of Swellpacker® Systems in North Dakota

North America: Zonal Isolation

THE CHALLENGE – Brigham Exploration Company wanted to maximize the zonal isolation in its wells in the middle Bakken formation. To date, the standard completion package had called for 10 Swellpacker® isolation systems set with the VersaFlex® expandable liner hanger. In order to realize the isolation benefits provided by the Swellpacker systems, the company requested that the completion package be increased to a total of 19 Swellpacker systems. Essentially, Brigham’s completion program required running the packers to a total depth of approximately 20,000 ft and setting the liner hanger, while simultaneously avoiding possible severe pipe fatigue.

Challenge Summary

- Properly placing 19 Swellpacker OBM systems into the long lateral at planned TD.
- Friction while tripping-in could be higher than previously recorded.
- Possibility of sinusoidal and helical buckling occurring while running-in-hole (RIH).

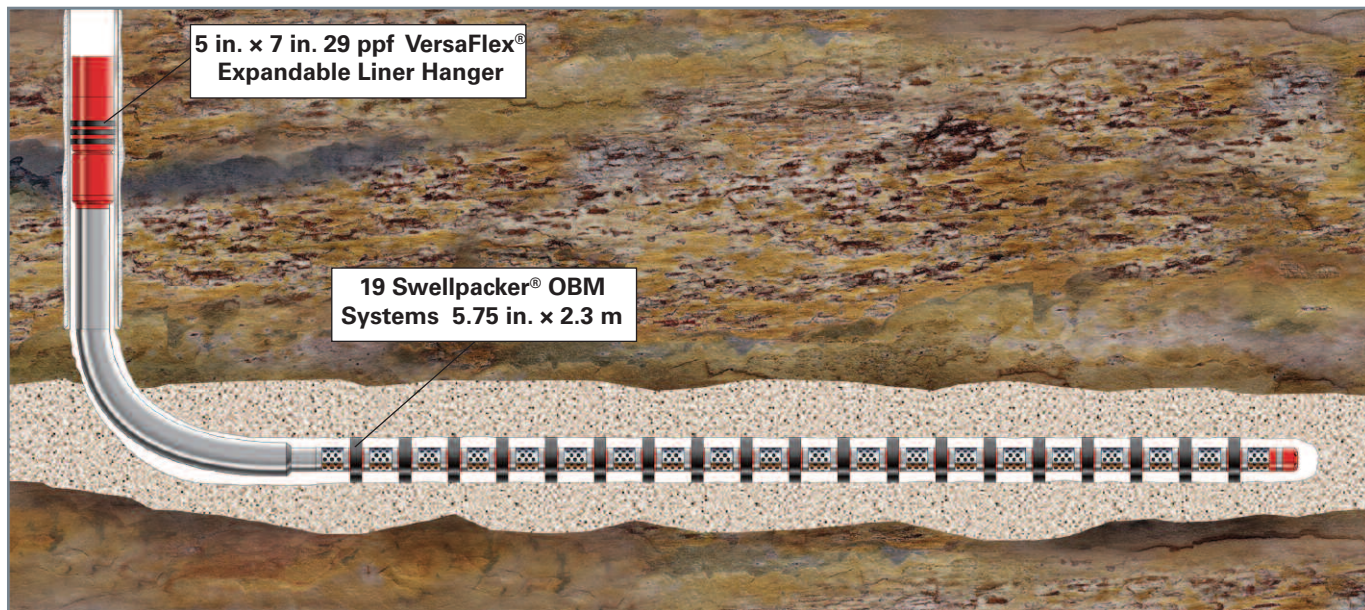
THE SOLUTION – Halliburton's team, working together with Brigham’s representatives, developed a solution to this completion challenge. During this process, a torque and drag analysis from Halliburton's Software and Asset Solutions group determined the existing well conditions and how any potential operational problems might be mitigated if they occurred. Halliburton recommended proper hole-conditioning and that rigid centralizers be utilized to avoid drag while running into the open hole. Additionally, it was suggested that heavyweight drillpipe be employed to reduce sinusoidal and helical buckling during run-in.

Solution Profile

- A torque and drag analysis was run to forecast well conditions and determine ways of mitigating potential problems.
- Brigham implemented Halliburton’s recommended best practices for proper wellbore conditioning.
- A total of 19 rigid centralizers were placed below each Swellpacker OBM system to minimize the wear on the rubber elements during RIH.
- A total of 1,378 ft of heavyweight drillpipe was used to reduce sinusoidal and helical buckling.

THE RESULTS – The job was executed according to the proposed plan and a total depth of 20,585 ft was achieved with the bottom Swellpacker® OBM system set at 20,095 ft MD. The VersaFlex® expandable liner hanger withstood the forces required to get to planned TD and set without any issues. The job also established a new North American record of 19 Swellpacker OBM systems run into a single lateral.

A 20-stage plug and perf fracturing treatment was successfully performed and Brigham saw a significant production increase compared to offset wells. Based on the success of the Swellpacker systems' zonal isolation performance, Brigham used this well as a model to complete several more wells with the new completion package of 19 Swellpacker systems set with a VersaFlex expandable liner hanger.



For more information on any of the details featured here, please contact: easywell@halliburton.com.