

[Case Study](#)

StackFRAC HD cemented off-bottom open hole completion establishes baseline for efficient and economic completions

[International, Iraq](#)
[StackFRAC HD System, SF Cementor Stage Collar](#)

After years of producing from discovery wells in the Kurdistan region of Iraq, operators have begun strategic completion planning as part of an official field development plan to reduce production declines, and target remaining oil to extend production for existing wells by several years.



Northern Iraq Region

One method being used to achieve the development plan is to drill a horizontal well sidetracked from an existing vertical well. An international operator successfully implemented this method by using the [StackFRAC® HD](#) system in combination with the [SF Cementor® D](#) stage tool. The completion was done efficiently, saving the operator time and costs.

Challenge

The operator's objective was to first sidetrack an existing vertical well to drill a monobore well. Sidetracked wells often move through challenging formations, leading to wellbore instability. The well design included both cemented and open hole sections to provide isolation of problematic sections of the reservoir which were known to have such problems, including mud losses and washouts.

Effective cementing is critical not only for efficiency, but also as an environmental responsibility. For one, it enables a significant increase in the lifetime of the well against the highly corrosive environment. Secondly, it prevents the potential invasion of gas that could contaminate surface water aquifers.

Solution

To isolate the target zone from the formation situated above it, the StackFRAC HD system was paired with the SF Cementor D cementing stage tool, using an off-bottom completion design. The SF Cementor includes a contingency sleeve mechanism that, if used, would prevent the loss of any stages.

The StackFRAC HD system met a number of criteria regarding efficiency and well conditions. The ball-activated system uses a continuous pumping operation, known to significantly

minimize non-productive time compared to coiled tubing or wireline completions. Moreover, StackFRAC was robust enough to withstand multiple acid treatments and corrosive reservoir conditions throughout the life of the well. Finally, the technology had already been proven for over a decade around the world, having improved production for operators in many formations.

Results

This completion was the first implementation of the Packers Plus StackFRAC HD system in Iraq to include the hydraulically-opened, wiper plug-closed SF Cementor D stage tool.



The off-bottom 4-stage StackFRAC HD system included the SF Cementor D stage tool. The SF Cementor D was used to cement from the heel up to the liner hanger to isolate the target zone from the formation above it.

The 4-stage StackFRAC HD system was installed without issue. The cement job from the heel section up to the liner hanger was executed as planned, without the need for the tool's secondary sleeve.

Once the open hole packers were set, heavy losses due to the naturally fractured reservoir stopped immediately. This confirmed that the production zones were effectively isolated and segmented.

All the Drillable Closeable (DC) FracPORT™ H2 sleeves were opened in preparation for the stimulation, and the lateral was stimulated stage by stage, in a continuous pumping operation. All 4 stages were stimulated in 4 hours at high rate.

The [ePLUS® Retina](#) monitoring tool independently verified critical events such as the SF Cementor D opening and closing, balls landing on seat, and sleeve shifts. The feedback was valuable for both real-time confirmation and post-job processing.

Initial production results have been positive compared to other wells completed with conventional methods. Furthermore, due to the efficiency and smooth operation of all the tools, the operator's economic analysis of this StackFRAC-SF Cementor D job has confirmed savings of over \$300,000 compared to acid with coiled tubing jobs or conventional completions methods.

Packers Plus systems are field-proven, efficient and cost-effective, and provide superior production results. Packers Plus has provided solutions for multi-stage completion systems around the world and specializes in technically challenging applications in horizontal, vertical, multi-lateral and high pressure/high temperature wells to maximize recovery.v