

Unique application of SF Cementor D Stage Collar improves reservoir coverage in sidetrack lateral

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

Cementing stage collars are commonly used in North America for monobore completions to reduce well costs. By cementing back the vertical and build sections of the wellbore, the intermediate casing and liner hanger packer can be eliminated from the well design.

An operator targeting a carbonate formation in eastern Saudi Arabia was examining a unique application of a stage collar, running the tool in conjunction with a liner hanger packer to effectively cement and isolate a water-producing build section of a sidetrack lateral wellbore. This would enable the operator to run a [StackFRAC® HD](#) completion system on 4.5-in. liner and optimize the stimulation treatment.



Challenge

Typically, the sidetrack lateral would be drilled in two sections. The first to run and cement 4.5-in. casing across the high pressure and waterbearing zones, and the second to run a slimhole system in the smaller 3.625-in. horizontal wellbore. To reduce drilling time and increase flow area for stimulation and production, the operator examined the idea of running a stage collar in conjunction with a liner hanger packer and a multi-stage stimulation system, all on a 4.5-in. liner. The liner hanger would be set in the vertical wellbore to hang the lower completion and then a stage collar would be positioned just below the water bearing formation to cement back the build section and ensure water does not come in with production.

Not only was this unique application a new concept for the region, the operator had concerns regarding the need to run a casing patch if the stage tool failed to close. This remedial action is common for most stage tools and running a casing patch across the stage tool results in a reduced inside diameter (ID) and lost stages.

Solution

The operator chose to run the SF Cementor® D stage collar for cementing the water bearing section of the sidetrack wellbore. This innovative tool is specially designed with a built-in, independent secondary sleeve operated by a shifting tool. This ensures the stage collar can still be closed in the case that the primary sleeve shift fails and because the tool maintains full ID the stimulation treatment can be executed as planned.

The SF Cementor D was also redesigned for this application to accommodate a liner hanger packer and close with a drill pipe dart launched from surface and a liner wiper plug housed in a bushing sub just below the liner hanger packer. A Debris Sub installed above the last stage of

the StackFRAC HD completion system prevents migration of cement, debris or milling cuttings further down the liner.

With the need for the liner to be hung off the sidetrack point, it was required that the operation of running the lower completion string, setting the liner hanger and open hole packers, cementing the upper liner section and setting the liner top packer be completed with tremendous accuracy for a successful job.



StackFRAC HD in a sidetrack lateral with cemented water bearing zone

Results

The SF Cementor D stage collar lowered completion costs for the operator by eliminating the requirement of the intermediate casing. The system installation and setting operations using the stage collar were successfully completed, without the need for the secondary closure sleeve. Cementing the upper part of the lower completion ensured that the shallower water bearing zone did not co-mingle with hydrocarbon production. Milling and cleanout trips were successfully performed to remove the drill pipe dart, liner wiper plug, debris sub and any leftover cement stringers prior to the acid stimulation treatment.

Packers Plus specializes in providing solutions for multi-stage completion systems and technically challenging applications in horizontal, vertical, multi-lateral and high pressure/high temperature wells. Well solutions are customized based on operator requirements and can be adapted based on changing industry demand.

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