



Weatherford®

REAL RESULTS

StarBurst™ Multilateral System Overcomes Challenges to Create Deep Lateral Junction

Objectives

- Create a lateral at 19,297 ft (5,883 m) to avoid a total loss after a target had been missed with a 19,000-ft (5,792-m)-plus extended-reach well. Previous sidetracking attempts on a similar deep well in the area showed that standard casing-exit technologies, used routinely at shallower depths, were not very efficient or cost-effective in these extreme depths.
- Mitigate anticipated difficulties: sinusoidal pipe buckling from the weight of a long drillstring, applied weight and torque limitations, accurate control and positioning of downhole tools, and the need to push tools all the way into the hole.
- Tag the cement top at the bottom of the well and pull back to the exact exit location, without breaking the shear attachment, to ensure the right location and departure direction of the new lateral.

Location

Equatorial Guinea

Well Type

Extended reach

Well Depth

19,000+ ft (5,792+ m)

Casing

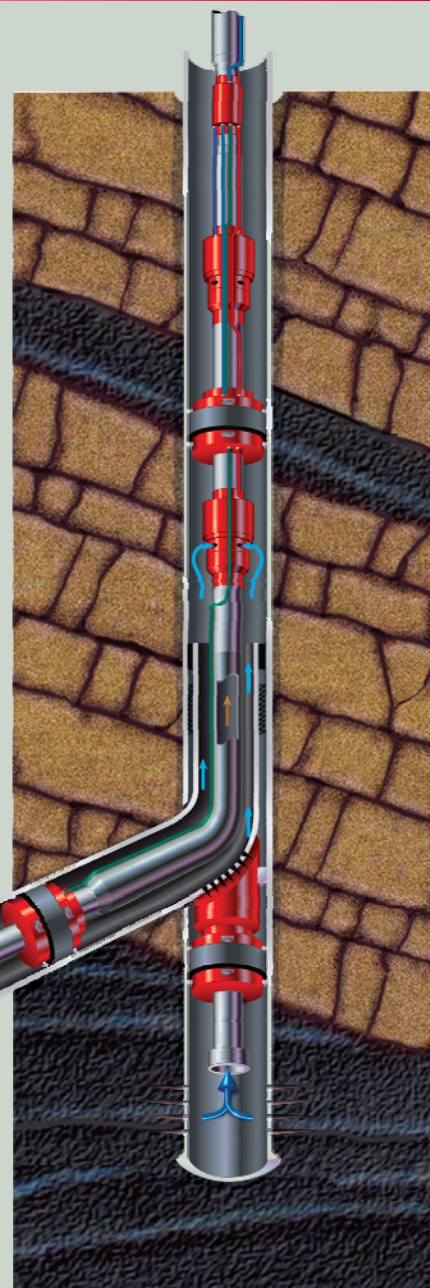
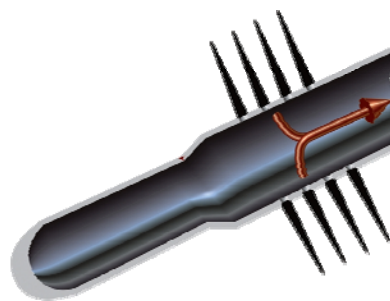
9 5/8-in., 47-lb/ft N80

Casing Exit Depth

19,279 ft (5,883 m)

Products/Services

StarBurst multilateral system



The *StarBurst* hollow-whipstock multilateral system is ideal for wells in mature fields where production rates are declining and additional nearby reserves can be drilled and produced while maintaining production from the original wellbore.



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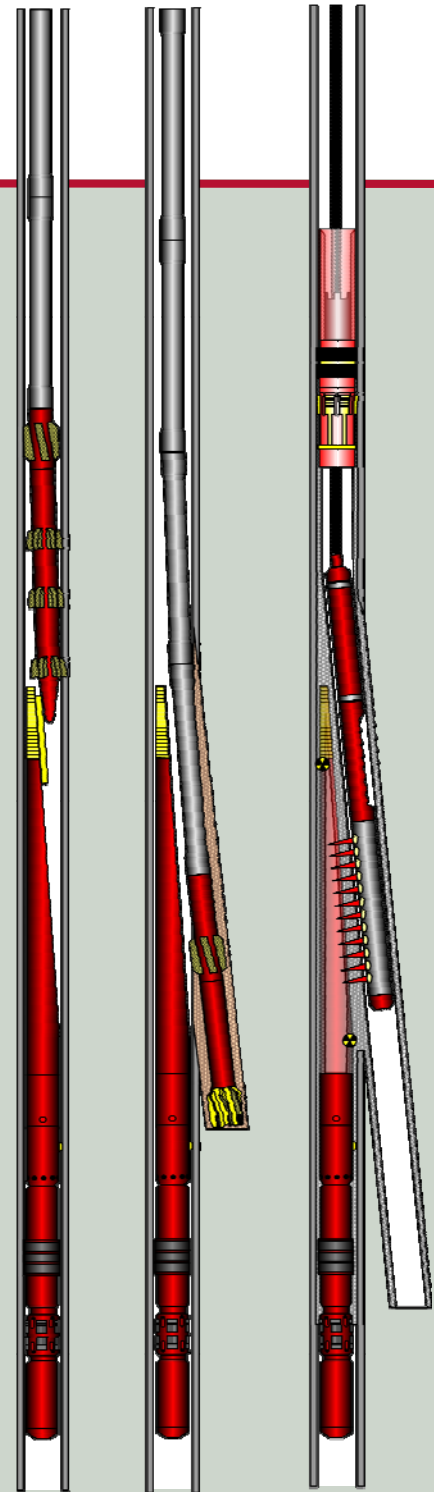
REAL RESULTS

Results

- Weatherford's unique StarBurst™ hollow-whipstock multilateral system was used to create a long exit window. This technology uses minimal weight to facilitate pipe handling, tool positioning, and weight and torque application.
- The downhole junction was created using standard multilateral equipment:
 - The unique design of the running tool allowed it to apply setting pressure to the whipstock without straining the attachment bolt. The whipstock's anchor slips prevented axial and radial movement. After confirmation that the whipstock was set correctly, the shear attachment bolt was sheared upward to avoid buckling problems associated with a downward shear.
 - The starter mill, with its three full-diameter blades, was deployed to create a full-gauge casing breakout. The hollow whipstock and a brass lug at the first part of the ramp facilitated breakout milling. The soft brass was easily milled as it guided the mill's nose and concentrated most of the milling force toward the casing, allowing the use of less pressure.
 - The multilateral system mill was run to complete a smooth transition into the new lateral.

Value to Client

- This extreme extended-reach casing exit was executed without any of the difficulties previously encountered, using conventional technology.



The *StarBurst* multilateral system, with a hollow whipstock, creates a longer window exit, using minimal weight. This capability helps avoid pipe buckling and other problems in ultra-deep well applications. The system provides a Level 4 junction with full-liner access to the lateral bore.