

High-Density, Definitive Dynamic Survey Data Helps Precisely Land Well 10-ft TVD Below Reservoir Top

TruLink service provides continuous survey measurements that enable real-time steering to minimize tortuosity and more accurately land well

Saudi Aramco minimized tortuosity in a complex well profile using TruLink* definitive dynamic survey-while-drilling service. Measurements taken from every point of the well as the BHA rotated on bottom enabled real-time steering adjustments, which enabled better wellbore positioning and placement of the well 10 ft below the reservoir top.

Minimize wellbore tortuosity

Saudi Aramco perceives wellbore placement and tortuosity as a growing concern in the drilling, completions, and production of wells. Excessive wellbore tortuosity has consequences throughout the well life cycle, ranging from increased well cost to decreased productivity. Excess tortuosity while drilling is causal to excessive casing wear, stuck pipe occurrences, and premature downhole equipment failure. During completion and cementing, wellbore tortuosity can lead to poor cementing and zonal isolation and limit fracture growth. Therefore, placing wells inside the reservoir while understanding the borehole tortuosity is crucial for Saudi Aramco in some applications.

Continue static surveys

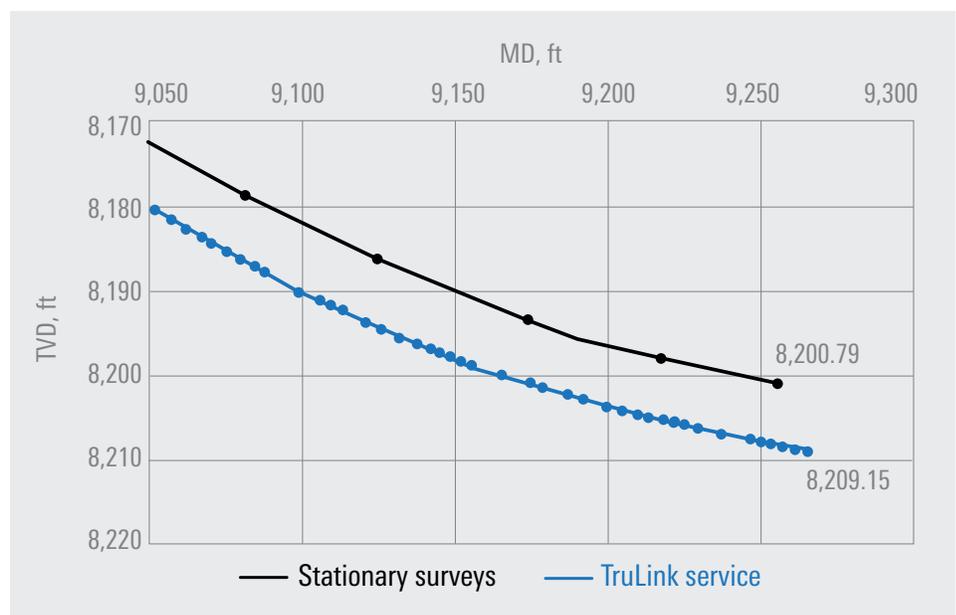
Static MWD surveys are widely used to provide measurements every 90 ft along the wellbore, which determine formation tops leading to wellbore placement. Each survey takes from 9 to 12 minutes per stand, adding significant time and cost to well construction, along with stuck pipe risks.

Perform real-time steering with definitive dynamic surveying

To mitigate tortuosity and its consequences, Schlumberger recommended TruLink definitive dynamic survey-while-drilling service. Indeed, Saudi Aramco collaborated with Schlumberger in field-testing the technology and found it reduces all survey-related rig time to zero. TruLink service performs definitive dynamic surveys while drilling on bottom—as the BHA rotates, providing considerable rig-time savings. New telemetry innovations refine survey accuracy using gamma ray and electromagnetic resistivity in combination with continuous 6-axis directional and inclination sensors. Measurements are from every point of the well, so steering adjustments are real time, which means reducing dogleg severity and creating smoother curves and laterals in complex well profiles.

Drilled smoother trajectory and more accurately placed well

Comparison between stationary-survey data and TruLink service revealed a 10-ft difference while landing the 8½-in curve section. Additionally, continuous surveying enabled real-time steering adjustments to minimize wellbore tortuosity while reducing the ellipse of uncertainty. The wellbore trajectory was smoother and TVD more accurately placed.



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