Matched Geo-Pilot® System and Long-Gauge Bit Shave 2 Days off the Drilling Curve in Oman

Location: Musallim Field, Oman

Operator’s Challenge
Drill an 8-1/2” section in unstable formations with a single bottom-hole-assembly (BHA).

Halliburton’s Solution
Sperry Drilling Services deployed the Geo-Pilot® 7600 series rotary steerable system with a Geo-Pilot FMFX651Z bit from Security DBS for improved rates of penetration (ROP) and optimum borehole quality.

Economic Value Created
Increased ROP of 15.8 meters (52 feet) per hour saved 2.1 days of drilling time and set a new field record.

Formation Collapse a Concern
Sperry Drilling Services was contracted to drill a well in the Musallim oil field in a remote desert location of Oman. The Musallim field is noted for unstable formations causing wellbore collapse or stuck pipe, resulting in considerable down time. Sperry aimed to drill an 8-1/2” section with a single BHA without the formation collapsing as experienced on some previous wells. The drilling program called to drill from vertical at 400 meters (1312 feet) to the kick-off point and land the well at 89 degrees inclination angle.

Matched Drilling System for Optimum Borehole Quality
Sperry Drilling Services deployed the Geo-Pilot 7600 series rotary steerable system with a Geo-Pilot FMFX651Z bit from Security DBS for improved ROP and optimum borehole quality. The Geo-Pilot system with the extended-gauge bit minimizes the nonconstructive bit behaviors caused by short-gauge sidecutting bits. It helps increase daily footage, eliminates hole spiraling and improves directional control. This in turn allows more precise wellbore placement while increasing drilling efficiency and speed through improved hole cleaning, easier casing runs, fewer short trips and reduced time required to drill the well.

Increased ROP Saves Drilling Time
Average ROP increased to 15.8 meters (52 feet) per hour, saving 2.1 days of drilling time. A new record for the Musallim field was set, delivering the 8-1/2” hole section of 1483 meters (4866 feet) in 3.9 days. This time beat the plan of six days and the previous 4.2 day record held by a competitor. The excellent ROP delivered by the Geo-Pilot system resulted in the well being completed 15 days ahead of schedule.