Sperry Geo-Pilot® Rotary Steerable System Helps Deliver Customer’s Deepest, Fastest Well in Karachaganak

Customer:  KPO
Location:  Northwest Kazakhstan

OPERATOR’S CHALLENGE – In the Karachaganak oil and gas condensate field onshore Northwestern Kazakhstan, the wells are very deep, with the top hole section typically about 4,000 m (13,123 ft) long. In these wells, the verticality of the 16-inch and 12 ¼-inch sections is of paramount importance since it has a significant impact on the torque and drag and the casing wear. The customer needed a reliable vertical drilling tool that would ensure verticality, high rate of penetration, and good hole quality.

HALLIBURTON’S SOLUTION – To provide the required verticality without compromising rate of penetration (ROP), Sperry Drilling services utilized the Geo-Pilot® rotary steerable system in two wells, 9822 and 9828. Specifically, Sperry drilled with the Geo-Pilot 9600 series system in vertical mode in the top hole sections, the Geo-Pilot 7600 series system and the 7-inch GeoForce® enhanced performance range motor in the 8 ½-inch kick-off sections, and the slimhole Geo-Pilot 5200 series system in the 5 7/8-inch horizontal sections.

A slimhole Geo-Pilot system was used to drill the reservoir interval with a full suite of logging-while-drilling tools for formation evaluation while drilling. In addition, in well 9828, Baroid’s INNOVERT® clay-free fluid system was introduced in the final section to improve drilling efficiency with reduced impact on the reservoir.

Running the Geo-Pilot system in vertical drilling mode, Sperry delivered both the 16-inch and 12 ¼-inch hole sections of these wells with less than one degree of inclination. In addition, well 9828 reached total depth at 6,356 m (20,583 ft) measured depth, making it the deepest well to date in the Karachaganak field.

ECONOMIC VALUE CREATED – Delivered using the Geo-Pilot rotary steerable system to provide verticality without compromising ROP, both of these wells set new field records, with well 9822 finishing 14 days ahead of schedule, and well 9828 achieving a field-record depth as well as finishing 15 days ahead of objective.