# Steering Directional Wells by Virtue of HD Boundary Mapping Mechanism to Place Drain Hole Successfully in a Thin, Highly Dipping Channel Sand, a New Case Study from Greater Burgan Field, Kuwait

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## ABSTRACT

A large number of wells drilled targeting Cretaceous reservoirs in Greater Burgan field. Due to unavailability of suitable surface locations, highly deviated and horizontal wells are drilled to reach them at target reservoir, sometimes well profile passes through faults or different sand bodies which create partial confusing while drilling, which results in bad target condition. Kuwait Oil Company has determined that output from the Burgan oilfield of South & East Kuwait required to be maintained as per the plan. A new approach helped to address these issues which otherwise delayed production. The Lower Cretaceous Burgan sands are divided into five main reservoirs; two reservoirs consist of stacked, massive fluvial channels, while remaining three mostly consist of delta distributary channels and bays in a tidal delta setting grading to shallow marine. In geo steering, channel sand geometry, perspective often sums up to discontinuous patches of sand lenses at differing stratigraphic levels. Maximizing net pay in a channel sand reservoir is known to be a very challenging task for the geo steering domain. Navigating a drain hole through such geometry requires precision geo steering technologies that can map multiple reservoir boundaries with high accuracy enabling precise forward designing wellbore trajectory with respect to the dynamic reservoir geometry. HD Multi Boundary Detecting & Mapping technology revolutionized the whole concept of geo steering in this regard by enabling proactive geo steering for the first time in industry. It features the capability of detecting reservoir boundaries up to a high radius around the wellbore and achieved great success all over the world through proactive geo steering in thin reservoir layers and maximizing the percentage reservoir contact. The new generation of HD Multi Boundary Detecting & Mapping technology is a noble advancement on the first generation Distance to Boundary technology. With significantly improved signal to noise ratio, supported by a robust and new multilayer stochastic inversion algorithm that incorporates a whole gamut of measurements, principally from 3 firing frequencies, this technology extends its capability by mapping multiple boundaries around the wellbore. A new case study from the Burgan Field presented in this paper, where the extended capability of this technology has yielded exemplary results in navigating wellbores through very complex channel sand geometry with dip changes & thicknesses