

CASE HISTORY

No. 1620



FRACSEAL CONTRIBUTES TO COST SAVING OF \$ 4MM - LUKSAR Saudi Arabia



The Challenge

In drilling the 16" hole of LUKSAR's appraisal well, from partial to total losses were expected in the notorious Wara (dolomite and sand), Khafji (loose sand) and the Shu'aiba highly porous carbonates formation (Limestone and/or Dolomite). Shu'aiba is fractured due to existing faults or due to its super high permeability. From previous experience in the region (North Rub Al-Khali), most of the time in attempt to regain circulation, lost circulation materials and cement plugs are useless. Other drilling challenges are tight hole and sloughing shale in the Biyadh/Buwaib formations between 6,600 ft-7,800 ft and at the Dhruma formation at ±11,500 ft.

The Action

The 16" hole was drilled from 4,950 ft using a KCl Polymer mud with mud weight of 66 pcf (8.8.ppg) to 74 pcf (9.9 ppg). Top of the troublesome Shu'aiba formation was expected to be at 6498 ft. **Started adding FRACSEAL into the active mud when drilling at 6,000 ft (±500 ft above loss zone)**. Mud weight was controlled using calcium carbonate. Since **FRACSEAL** was added, the concentration was maintained at **7-8 ppb** throughout drilling until the section TD at 12,120 ft.

The Result

The 16" hole was drillied with minimal losses. No other drilling challenges expected were found or detected such as sloughing shale, tight hole, bit balling and stuck pipe across the dolomite stringers. At earlier time, this section (±7,100 ft) was completed with two casing sizes (16" & 12-14"). Due to the problematic formations were well protected, LUKSAR was able to eliminate one casing size on this well and had a cost savings of USD 4MM - in terms of reduced rig days, cement and drilling fluids volume and casing.



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