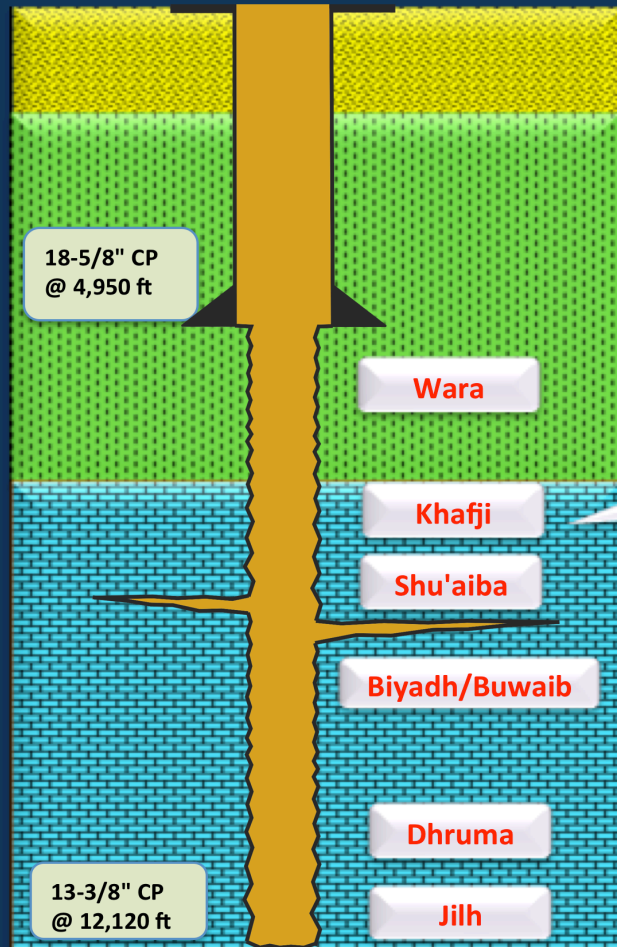


## FRACSEAL CONTRIBUTES TO COST SAVING OF \$ 4MM - LUKSAR Saudi Arabia



### 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  $\pm 11,500$  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 ( $\pm 500$  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 drilled 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 ( $\pm 7,100$  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.