

## Case Study – VERTECHS ULIA® + HPIT Realtime Wellbore Strengthening Solution(RWSS)

*Eliminates induced loss in multiple formation pressure zone, reducing 200+ hrs NPT.*

**Well Location:** South-west China.

**Well Type:** Horizontal Gas Well.

**Application Interval:** 8 1/2" Section with Multiple Formation Pressure

**Down Hole Temperature:** 230 ~ 284 °F

### Challenges:

- Complex formation pressure, the coefficient of formation pressure is 2.17, 1.76, and 1.92 from top to bottom of 8 1/2" section
- Narrow drilling window, higher risks of losses or gas influx
- H<sub>2</sub>S and well control risks
- Over 70% complex occurred in adjacent wells within this section, resulting over 200+ hours NPT per well

**Solution:** Maintain overbalanced drilling to avoid well control problems. After drilling the upper high pressure zone, it is necessary to improve the wellbore strength and widen the mud weight window while drilling through the lower zone to avoid induced losses. Also, to evaluate the performance in real-time by using HPIT.

**Process:** Vertechs' RWSS was implemented from 4128 m which is the bottom of high pressure zone to the design depth 5159 m of 8 1/2" section. 5 ppb ULIA® nano-based wellbore strengthening material was added into the mud system to form a low permeability film at fluid-rock interface while drilling, improving wellbore strength and circumferential stress near the wellbore region. Vertechs High Pressure Invasion Tester (HPIT) was also used on-site to provide real-time evaluation for drilling fluid performance and ULIA® concentration optimization.

**Results:** Drilled through challenging section successfully without influx, overflow, or losses, reducing 200 hours non-productive time for clients.



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