

# De-Risking a Faulted Carbonate Lateral

## Real-Time Geosteering Delivers Confident Crossings, Zone Control in a Record-Breaking Run

### Objectives

- Drill a new 6 1/8-in. section in carbonate reservoir as a maximum reservoir contact (MRC) well and complete it as a single water injection well equipped with 4 1/2-in. lower completion.
- Place and hold the wellbore along a ~10,152-ft (~3,094-m) horizontal interval on structural slope while maintaining zone control in Unit B and protecting Unit A.
- Anticipate and safely cross four predicted fault systems without sacrificing section delivery performance or image quality.
- Deliver a smooth, stable, completion-ready wellbore condition suitable for running the 4 1/2-in. completion at TD.

### Our Approach

- Selected the Magnus<sup>®</sup> Saker rotary-steerable-system (RSS) based on offset performance on the same rig (9,937 ft (3,029 m) drilled in a single run), targeting repeatable long-lateral execution.
- Ran a quad-combo LWD package (gamma ray, multi-frequency resistivity, density/neutron, micro-resistivity, and density imaging) from the landing point to TD to support continuous real-time interpretation and geosteering decisions.
- Used an integrated drilling-geosteering workflow to balance high ROP with trajectory smoothness, steering responsiveness, and image quality through faulted carbonate intervals.

### Value to Customer

- Achieved 81.2 ft/hr (24.7 m/hr) average ROP, exceeding the 72 ft/hr (21.9 m/hr) target by 13%, helping the operator shorten drilling time while still meeting wellbore quality needs.
- De-risked fault crossings with real-time confirmation and proactive steering (fault indications observed at ~9,065 ft MD (~2,764 m MD) and ~12,160 ft MD (~3,706 m MD)), reducing uncertainty while maintaining drilling efficiency.
- Maximized reservoir exposure by keeping most of the lateral in the 20 to 28 p.u. porosity interval while correcting dense streak incursions (16 to 18 p.u.) quickly with immediate steering adjustments.
- Protected completion deliverability by maintaining a smooth, controlled trajectory and wellbore quality suitable for running the 4 1/2-in. lower completion.
- Set a benchmark for future wells, drilling 10,152 ft (3,094 m) in a single 6 1/8-in. horizontal section, demonstrating a repeatable approach for future wells.



The Magnus Saker RSS delivers a step-change in drilling performance by extending run length, increasing dogleg capability, and enabling real-time trajectory control in demanding environments.

#### LOCATION

Middle East

#### WELL TYPE

Development, injector, horizontal

#### FORMATION

Carbonates

#### FOOTAGE DRILLED

10,152 ft (3,094 m) MD

#### PRODUCTS/SERVICES

- Magnus Saker RSS
- SineWave<sup>™</sup> microimager
- MFR<sup>™</sup> resistivity tool
- AZD<sup>™</sup> azimuthal density sensor
- TNP<sup>™</sup> thermal neutron porosity sensor
- HEL<sup>™</sup> hostile-environment-logging measurement-while-drilling system

