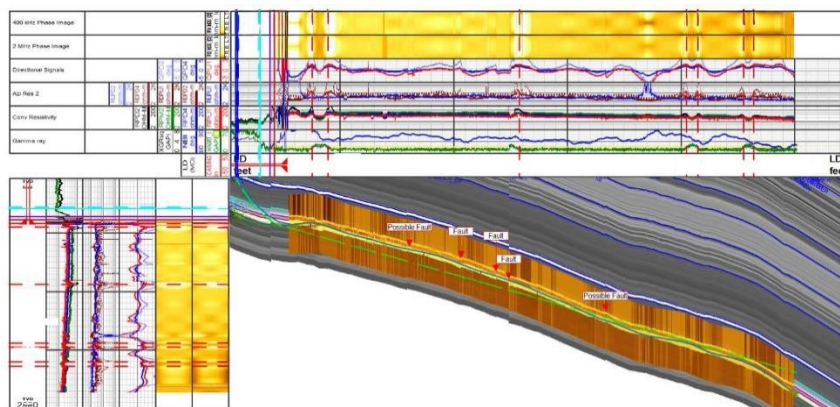


GuideWave® CLEAR Multilayer Analysis

Optimally Positions Lateral Section Through Complex Faulted Geology With Great Reservoir Exposure



Final interpretation of the lateral section detailing the precise position of the well within the reservoir and adjacent formations.

LOCATION
Middle East

WELL TYPE
Horizontal

FORMATION
Limestone

HOLE SIZE
6-1/8 in.

DEPTH
Lateral length: 4,505 ft (1,373 m)
Reservoir exposure: 4,141 ft (1,262 m)

PRODUCTS/SERVICES

- GuideWave CLEAR azimuthal resistivity tool
- Interpretation and Evaluation Services

Objectives

- Proactively steer approximately 4,505 ft (1,373 m) measured depth (MD) laterally (as per the well plan) in the upper part of the target limestone (approximately 2 to 3 ft (0.6 to 0.9 m) from the target) using the GuideWave CLEAR tool mapping data, all the while realizing the structural dip and maintaining a smooth borehole. The tool provides multi-layer inversions that supports geological mapping and deep understanding of relative position of target reservoir against the adjacent formation.
- Avoid exiting the target formation and maintain the desired stratigraphic position within the target using directional measurements and mapping data from the GuideWave CLEAR azimuthal resistivity tool.

Our Approach

- An offset well was used to build a structure model and create forward-modeled responses for correlation/modeling.
- This provided the basis for the modeling of conventional and deep reading EM responses
- Both conventional three-layer inversion as well as multi-layer inversion simulation models were used to estimate the best possible positioning within the faulted reservoir. The distance-to-bed boundary (DTBB) could be utilized with a maximum detection range of approximately 18 ft (5.4 m) true stratigraphic thickness (TST).



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Our Approach (continued)

- To determine the potential maximum geoconductivity amplitude, different scenarios were considered to build the geosteering model, such as entry and exit of the reservoir through the base, the roof, as well as possible local structures such as faults.

Value to Customer

- The operator successfully used the GuideWave CLEAR azimuthal resistivity tool inversions to map the lower boundaries of the target, avoid an exit, and estimate the position within the target and formation apparent dip.
- Both the azimuthal resistivity tool data and the resistivity inversion model were used to identify faults/fractures crossed and map layers above the main target reservoir.

