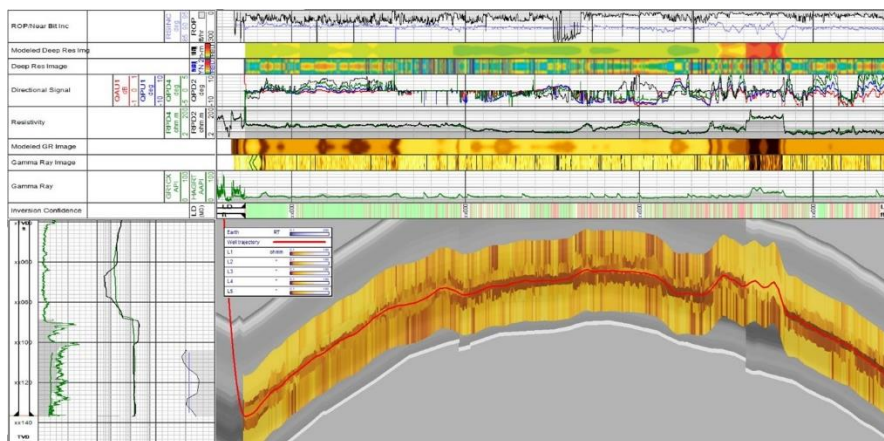


# GuideWave® CLEAR Multilayer Mapping-While-Drilling Service Enables Geosteering in Complex, Extreme-Temperature, Extended-Reach Well



The GuideWave CLEAR service delivers the highest confidence with less uncertainty for precision steering decisions in clastic and carbonate reservoirs by providing a multi-boundary inversion with a deterministic approach that calculates the thickness and resistivity of the formations in a radius exceeding 40 ft (12.1 m) around.

## Objectives

- Design and implement a water-injection well to support oil production on the flank of the field.
- Position certain portions of the lateral within specific targets. The reservoir consists of two relatively thin porosity layers within a thick carbonate complex. The operator wanted to open the upper zone first, move to the lower zone, and then back to the upper zone.

## Our Approach

- In collaboration with the operator, Weatherford experts conducted pre-job modeling from the geological and technology perspective to determine the optimal course of action in the extreme temperature range and long horizontal drain.
- The teams created the final “drilling on paper” plan—including tools, measurements, and the structural setup—to bring all involved parties together.
- To minimize the risk of stuck tools and the loss of radioactive sources, Weatherford engineers recommended a bottomhole assembly (BHA) comprising a rotary-steerable system (RSS) and both the GuideWave azimuthal resistivity and CrossWave™ azimuthal sonic tools.
- The well placement service precisely met the operator’s requirements of positioning certain portions of the lateral within specific targets.

### LOCATION

United Arab Emirates

### HOLE SIZE

6 in.

### TEMPERATURE

289°F (142°C)

### DEPTH

30,160 ft (9,192 m)

### PRODUCTS/SERVICES

- GuideWave CLEAR service
- Well placement
- Interpretation and Evaluation Services (IES)
- CrossWave sonic tool



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## Our Approach

- The GuideWave CLEAR multi-layer inversion identified reservoir zones and gave insight into reservoir spatial development.
- While drilling, a fault was encountered, moving the trajectory into a dense formation, and the geosteering service managed to bring it back into porosity within strict constraints, balancing the trajectory smoothness and necessary non-reservoir zone exposure.

## Value to Customer

- The use of GuideWave CLEAR multi-layer inversion in conjunction with the real-time correlation of all acquired data provided an unsurpassed level of confidence during the execution of the well.
- The service proved its effectiveness of the single-well injection in supporting nearby laterals, including those located up-structure.
- Under the Weatherford solution, the operator was able to save the cost of a dedicated high-temperature technology and shallower sections material.
- By drilling an extremely long extended-reach well instead of multiple wells, the operator minimized the surface footprint, reducing the overall environmental impact.

