

# Operator Accurately Positions Two Wells in Challenging Target Reservoir Sands Offshore Australia

Real-time mapping helps steer wells in a complex, highly faulted reservoir

## CHALLENGE

Continuously map reservoir in real time, delineating layers while steering for maximum exposure into dual laterals. Update geological and reservoir model with reservoir mapping data.

## SOLUTION

Use GeoSphere\* reservoir mapping-while-drilling service to accurately steer two horizontal wells while mapping the reservoir in real time.

## RESULTS

Generated accurate geological cross sections along two producer wells during successful drain trajectory placements into reservoir sweet spots.

**“The GeoSphere service provides the most technologically advanced multilayer bed boundary mapping in the industry.”**

Geological Advisor, Operator

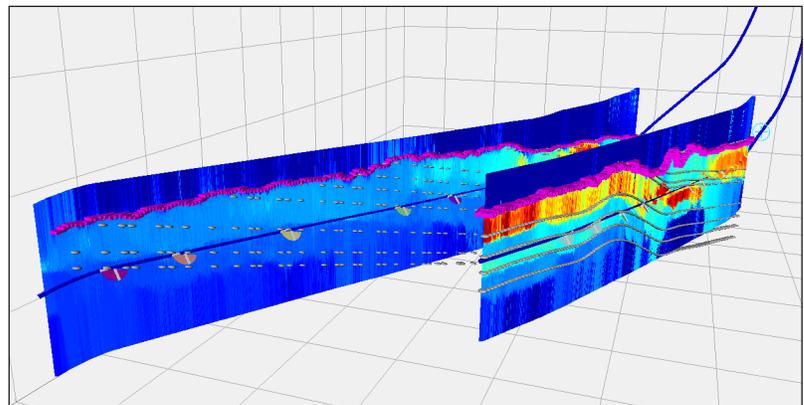


## Drill horizontal development wells in highly faulted reservoir

An operator planned to drill several horizontal development wells in offshore Western Australia in oil columns less than 65 ft [20 m] wide with horizontal trajectories greater than 8,200 ft [2,500 m] long. The field comprises fault terraces that serve as structural and stratigraphic trapping mechanisms. Closure is provided by structural dip, with crossfault shale juxtaposition between terrace blocks. The lower net and interbedded nature of the field presented additional challenges, complicating reservoir steering.

## Achieve maximum reservoir exposure to increase production potential

Prior use of GeoSphere reservoir mapping-while-drilling service in the same field delivered successful results. The operator selected this service to achieve similar reservoir mapping and steering objectives. The service provides real-time reservoir mapping that extends the depth of investigation to more than 100 ft [30 m] from the wellbore. Using deep, directional electromagnetic measurements from the GeoSphere service to complement surface seismic data, operators can see a clear delineation of fluid contacts and geologic structural dips. With this information, operators are better able to precisely steer the well trajectory in complex reservoirs. Data acquired during steering operations is compared with seismic information to create field development plans.

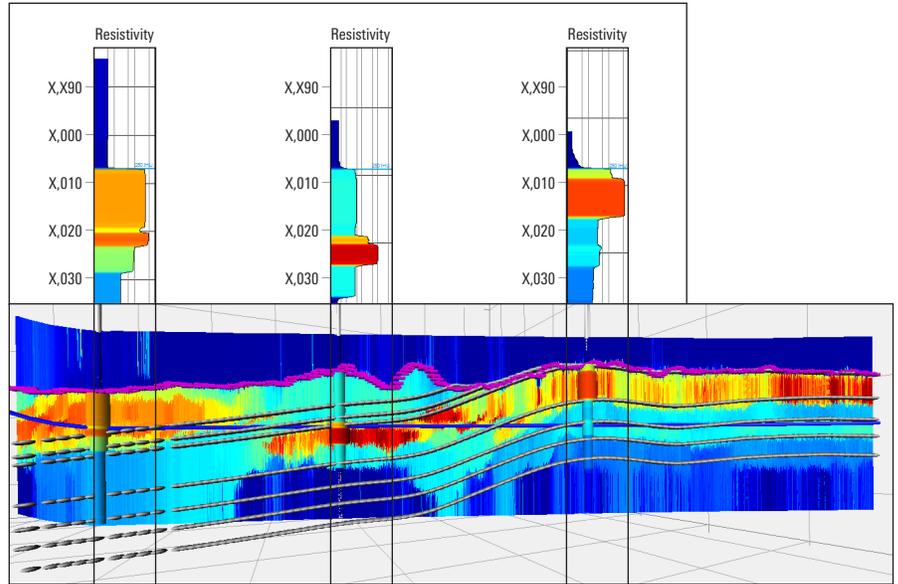


*Subsurface layering and relative dip angles are revealed in 3D in two horizontal wells with the curtain, cross-sectional map produced by the GeoSphere service.*

### Optimally positioned two horizontal wells and updated reservoir model

The GeoSphere service gathered information about the reservoir's structural boundaries, refined and validated existing seismic data, and generated accurate geological cross sections along the length of the two producer wells. The integration with real-time data from the GeoSphere service resulted in a detailed representation of the highly faulted reservoir and enabled precise positioning of the wells in the target reservoir sands.

The operator updated its geological reservoir model using the information gathered while drilling the two wells and has since successfully drilled two additional wells using the GeoSphere service.



*Reservoir structural boundaries from the GeoSphere service are used to generate geologic cross sections between producer wells within the field.*