

Case study: Gulf of Mexico

HC-Vision reservoir characterization service identified best production zones

A major oil company in the Gulf of Mexico needed to identify proper compartmentalization of an ultra-deepwater reservoir. Baker Hughes collected standard C1-C5 gas data, and used the **HC-Vision™ reservoir characterization service** to identify downhole fluid sample locations in targeted depths.

The petrophysical data in Figure 1 shows a sand reservoir, but the fluid compartments are not clear. By analyzing mud gas datasets with the HC-Vision service, proper depth and compartments are clearly shown in Figure 2.

The HC-Vision reservoir characterization service confirmed the results from downhole sampling measurements, so the customer had increased assurance of the reservoir properties and target zones. With this additional analysis, the customer was able to save time by pin-pointing where to acquire downhole fluid samples. This enabled them to better plan their completions and determine best production zones.

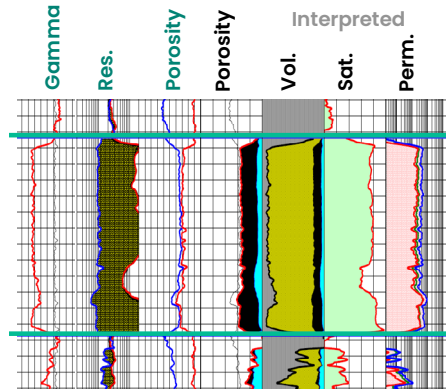


Figure 1. Petrophysical log data confirmed with production-interpreted data—the gray header text is interpreted, and green text is field data

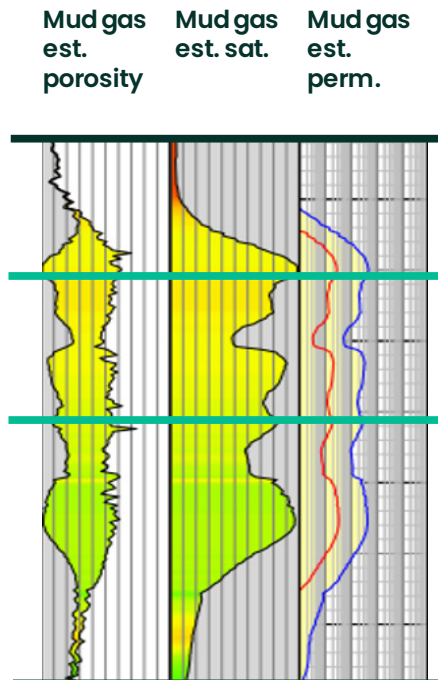


Figure 2. Mud gas ratio interpretation—the purple lines show the fluid compartments, revealing that the oil becomes wetter as depth increases

Challenges

- Proper identification of fluid properties
- Completion challenges due to different compartments within the reservoir
- Ultra-deepwater fluid sampling depths 32,000+ ft (9750+ m)

Results

- Leveraged pre-existing surface logging mud gas data to achieve fluid boundaries
- Determined like-type fluid compartments for downhole fluid sampling verification
- Saved time and ensured flawless sampling locations
- Verified fluid results by using production data