

# SpectraSphere Fluid Mapping-While-Drilling Service Saves Hess 3 Days Offshore Malaysia

Hess Corporation reduces risk and optimizes logging program by analyzing fluid, gas, and pressure data in highly deviated wellbore

## CHALLENGE

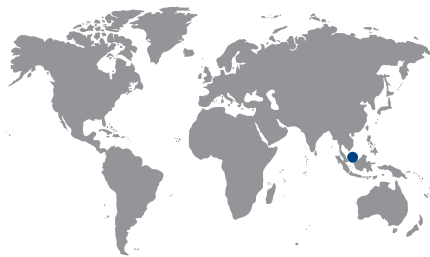
Acquire formation fluid samples and pressure measurements in a highly deviated wellbore that intersected pressure-depleted zones with increased risk of differential sticking.

## SOLUTION

Use the SpectraSphere\* fluid mapping-while-drilling service to acquire reservoir-representative fluid samples and accurate pressure data to determine formation water salinity and to enhance completion and production planning.

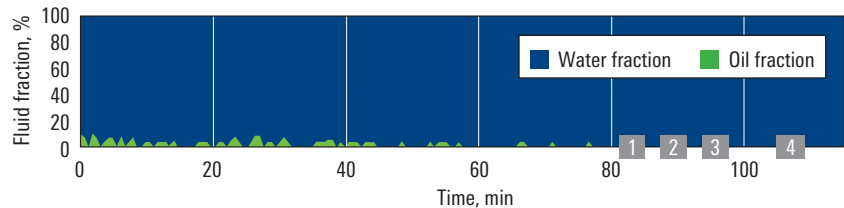
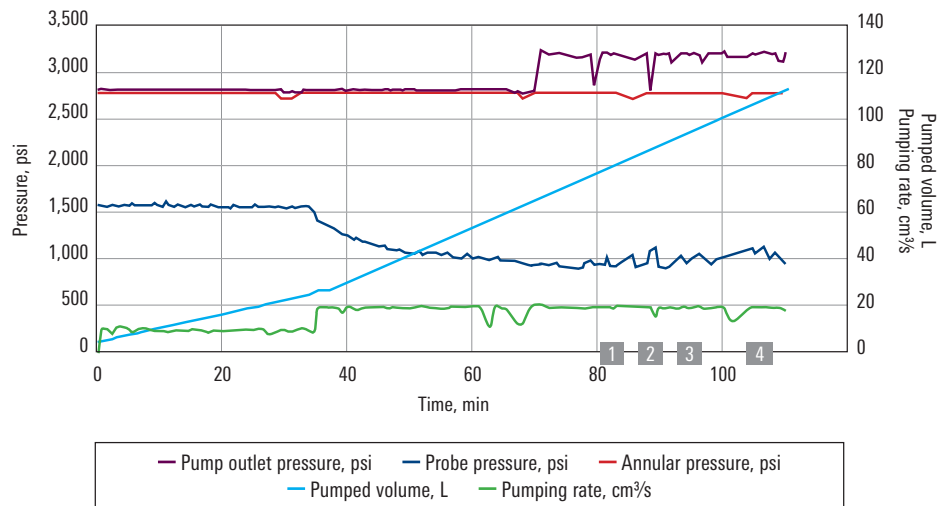
## RESULTS

- Acquired fluid samples with less than 1% contamination.
- Obtained all fluid samples and pressure measurements in one run.
- Completed sampling operations in 2 hours per station, avoiding differential sticking.
- Saved 3 days by eliminating the need to conduct further formation testing in two additional wells.



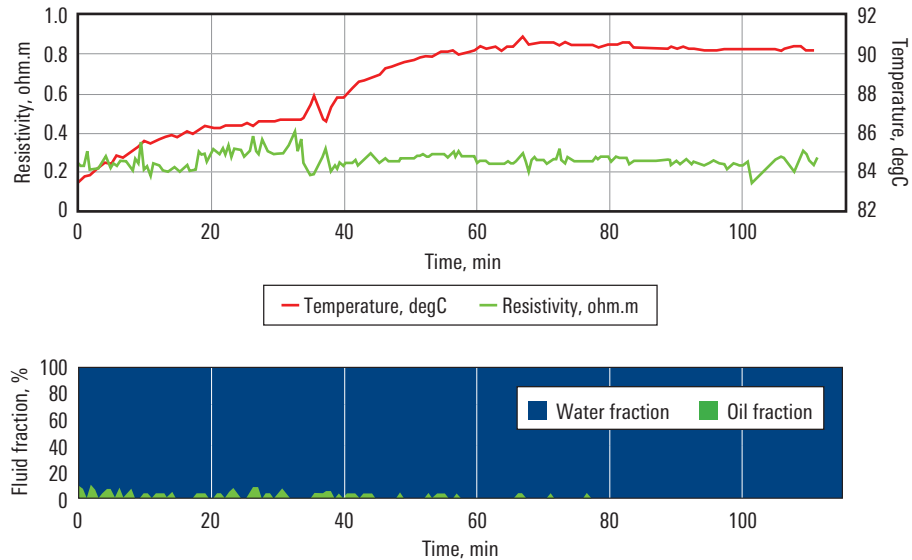
## Acquire water and gas samples for field development plan

To further develop a field offshore Malaysia, Hess Corporation needed a complete understanding of the reservoir, particularly fluid properties. Unfortunately, no critical data was available from the existing exploration well. As a result, Hess needed to obtain formation fluid and gas samples and formation pressure measurements from three wells. Because these three wells were highly deviated and the well paths would likely intersect pressure-depleted formations, Hess was concerned about differential sticking during sampling.



The SpectraSphere service provided real-time fluid fraction measurements that showed a decrease in the presence of oil-base drilling filtrate. This information allowed Hess to begin sampling after the cleanup process was completed. As indicated by the numbers above, Hess took a total of four samples—at 80.2 min (1), 89.3 min (2), 96.1 min (3), and 106.3 min (4).

## CASE STUDY: SpectraSphere fluid mapping-while-drilling service saves Hess 3 days, offshore Malaysia



The real-time temperature and resistivity data indicated that the fluid being pumped was increasingly representative of the reservoir fluid. Simultaneously, fluid fraction data showed a decrease in the presence of oil. Hess used this data to begin obtaining reservoir-representative samples at 80.2 min.

### Obtain fluid samples and perform downhole analysis

Schlumberger recommended obtaining the downhole pressure and fluid samples using the SpectraSphere service. The service includes an advanced optical spectrometer and resistivity cell that both monitor the reservoir fluid properties and cleanup process as fluid is pumped through the flowline. When the pumped fluid meets the operator's requirements, a downlink can be sent from surface to capture the formation fluid. Multiple sample bottles can be filled at a single sampling station, and as many as 12 fluid samples can be captured in a single run.

### Create field development plan sooner with increased knowledge

Using the SpectraSphere service, Hess collected 4 fluid samples, 2 gas samples, and 21 formation pressure measurements over 12 hours while also avoiding differential sticking. Downhole testing showed the samples were contaminant free, and subsequent lab results confirmed that the samples were representative of the reservoir. Further sampling of the asset in a second and third well was deemed unnecessary, saving Hess 3 days.

This was the first sampling operation conducted by Hess in this field. With the collected water samples, the operator gained insight into formation water salinity, which is critical to calculating water saturation and optimizing completion design and production planning. The pressure data will help the operator understand zonal connectivity within the field.

[slb.com/spectrasphere](http://slb.com/spectrasphere)

Source: SPE-176126-MS, "Reducing Risk and Improving Efficiency of Extended Reach Drilling Through Use of Sampling While Drilling Technology."

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