Extreme mud losses
Unexpectedly extreme mud losses occurred while a difficult intermediate section of a deepwater Gulf of Mexico well was being drilled. The operator wanted to understand the cause of the losses and extent of their occurrence to effectively plan the trajectory for the bypass well.

Insight on fracturing from vertical fracturing detection processing
Rt Scanner triaxial induction service calculates vertical and horizontal resistivity ($R_v$ and $R_h$, respectively) from direct measurements while simultaneously solving for formation dip at any well deviation. Measuring at multiple depths of investigation in three dimensions avoids the biases introduced in conventional resistivity logging by formation heterogeneity and inclined layers. Processing provides information on formation anisotropy, dip and cross-bedding, and geometry. New vertical fracture detection processing calculates the vertical fracture indicator (VFI) and fracture orientation to support advanced structural interpretation.

Successful bypass of the loss zone
Data from Rt Scanner service across the estimated loss zone was processed to characterize the fractures by VFI and dip. It took only 24 h for the vertical fracture detection processing and to make an in-house presentation by Schlumberger petrotechnical experts. With this information, key decisions could be confidently taken for handling the losses and planning the bypass trajectory.

Analysis of the vertical fracture detection processing showed that the likely drilling-induced petal fractures were more abundant and widespread across a zone that was much larger than was originally thought. Understanding the generation and extent of the loss zone enabled selecting a kickoff direction for the bypass well that successfully avoided recurrence of the fracturing.

"With the help of the Rt Scanner fracture analysis, we were able to establish the orientation and direction objective for our bypass well. Without this analysis, we would have kicked off without accurately knowing if we would be drilling into the same fracture system, creating large mud losses, as we did previously."

Operations Geologist
The processed data from Rt Scanner triaxial induction service clearly show the extent of the fractured loss zone and the orientation of the fractures.