**CHALLENGE**
Evaluate the petrophysics and geomechanics of a carbonate reservoir to improve formation evaluation in tough logging conditions.

**SOLUTION**
Use SonicScope* 675 multipole sonic-while-drilling service in combination with NeoScope* sourceless formation-evaluation-while-drilling service to obtain a full petrophysical evaluation using both compressional and shear measurements.

**RESULTS**
- Successfully logged the well without a dedicated logging run, saving 2 rig days.
- Improved formation evaluation in tough logging conditions and provided sonic data assurance.
- Enabled the operator to determine packer placement to optimize potential production zones.

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**Improve formation evaluation in tough logging conditions**
When drilling a new 8½-in hole section in a Gulf of Mexico well, a national oil company (NOC) sought to evaluate the petrophysics and geomechanics of the carbonate reservoir to improve formation evaluation in tough logging conditions. Reliable information regarding pore pressure, wellbore instability, and geomechanics in the acoustically challenging formation would allow the operator to log the well without a dedicated logging run. It would also help the operator determine optimal packer placement to enhance production potential.

**Develop a fit-for-purpose formation evaluation solution**
For reliable formation evaluation in this environment, Schlumberger engineers proposed running the SonicScope service in combination with the NeoScope service. The SonicScope service combines high-quality monopole and quadrupole measurements to deliver robust compressional and shear slowness—along with enhanced Stoneley data—in both fast and slow formations regardless of mud slowness. The NeoScope service was also recommended to determine fluid typing and velocity of the formation to optimize packer placement.

**Obtained reliable compressional and shear measurements**
Using the SonicScope and NeoScope services, the NOC obtained a full petrophysical evaluation of the carbonate reservoir, improving formation evaluation in tough logging conditions and providing sonic data assurance. The fluid typing and velocity data enabled the NOC to optimize packer placement and enhance production potential.

The operator saved 2 rig days by avoiding a logging trip to obtain similar data of the complex carbonate formation. In addition, the compressional, shear, and Stoneley measurements were used to update the geomechanical and geophysical models of the field.
Using SonicScope and NeoScope services, the operator accurately determined fluid typing and velocity of the acoustically complex formation.