

SonicScope 675 Service Identifies Gas Reservoir Using Real-Time Compressional and Shear Measurements

Operator validates surface seismic data and monitors pore pressure in a very slow formation using unique Leaky-P processing, Southeast Asia

CHALLENGE

Drill and evaluate a deepwater well in a very slow clastic formation using real-time compressional and Shear measurements to obtain accurate time-depth information, validating surface seismic and confirming reservoir fluids.

SOLUTION

Use SonicScope* 675 multipole sonic-while-drilling service to obtain continuous compressional and shear measurements, using monopole Leaky-P processing for real-time pore pressure monitoring.

RESULTS

- Monitored pore pressure in real-time using continuous compressional with Leaky-P processing in formations as slow as 220 us/ft and continuous quadrupole shear in formations as slow as 460 us/ft.
- Accurately tied in to surface seismic data.
- Confirmed gas presence in the reservoir section using V_p/V_s crossplots.



Obtain accurate pore pressure prediction in very slow formation

When drilling a deepwater well in Southeast Asia, an operator wanted to obtain sonic-while-drilling data to reduce uncertainty in surface seismic data by monitoring real-time pore pressure and obtaining accurate time-depth information. Because of the slow, clastic formation, signal attenuation makes it difficult to acquire high-quality compressional and shear measurements using conventional sonic acquisition tools, so an advanced solution was desired.

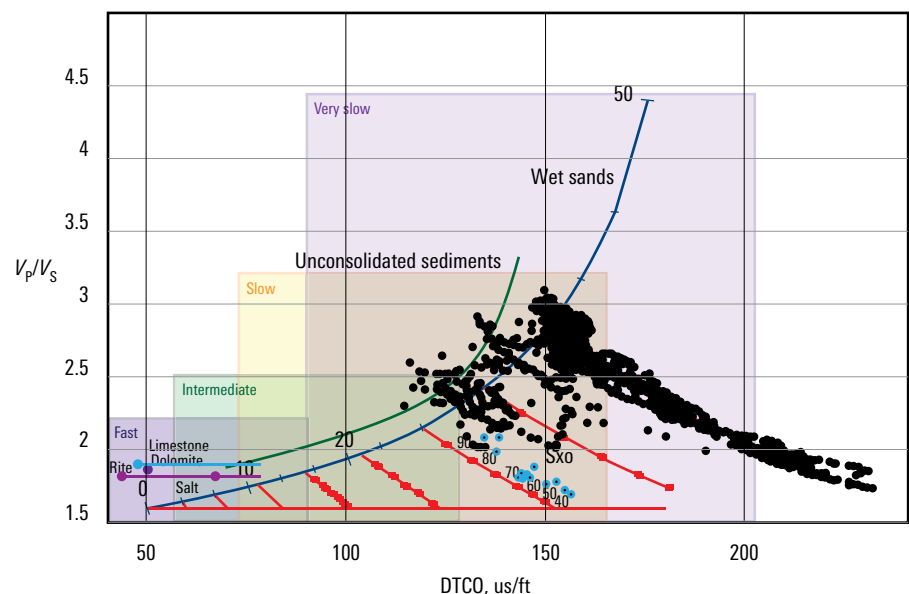
Use SonicScope 675 sonic-while-drilling service

Schlumberger engineers recommended using SonicScope 675 service for real-time accuracy with LWD multipole acoustics. The SonicScope service combines high-quality monopole and quadrupole measurements to deliver robust compressional and shear slownesses — along with Stoneley data — in a wide range of applications, regardless of mud slowness. Using the monopole low-frequency firing mode, compressional slowness is extracted through a leaky compressional mode (Leaky-P) that is unique to the SonicScope service.

Identified gas presence using real-time compressional and shear data

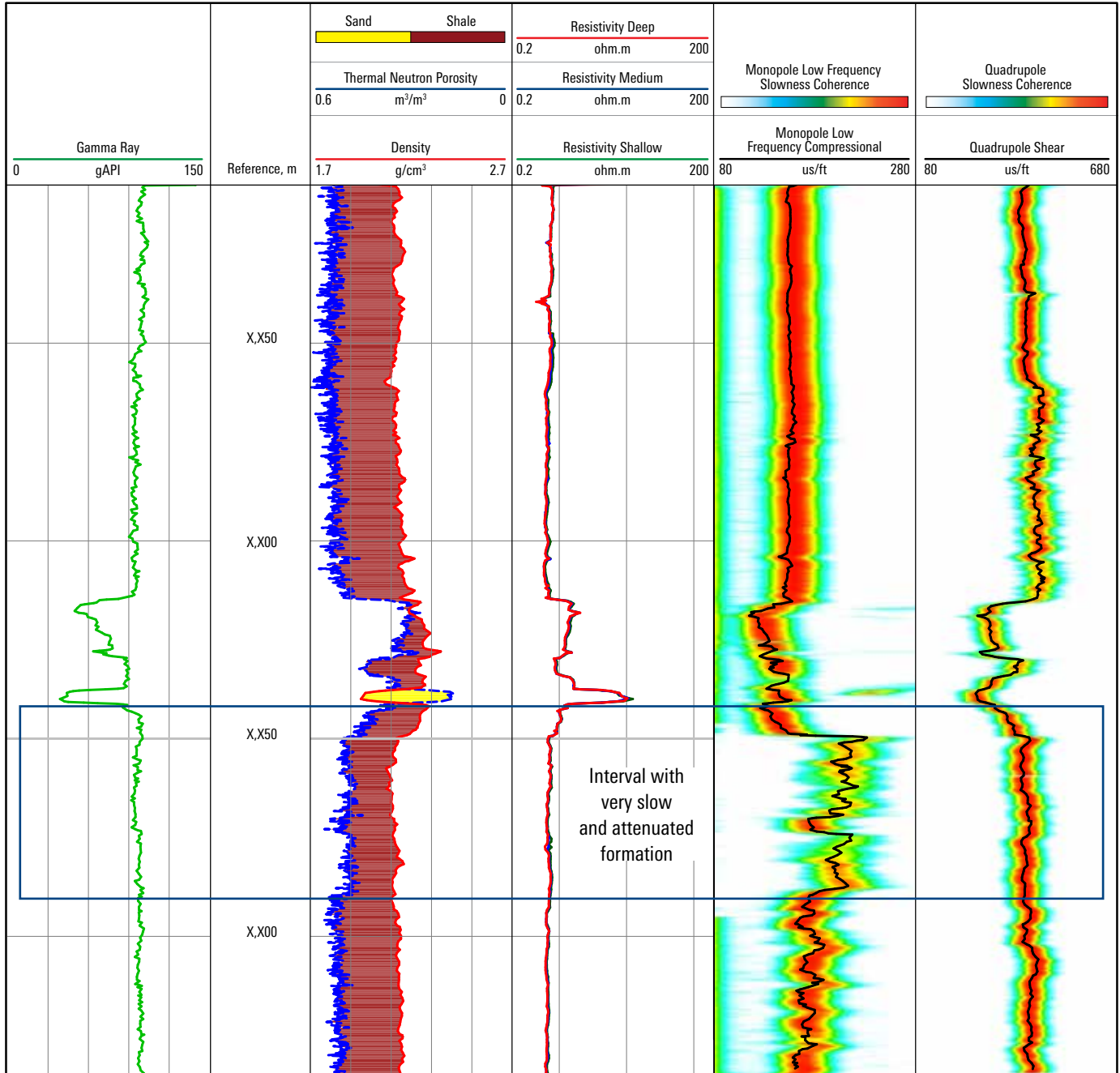
Using SonicScope 675 service, the operator was able to acquire reliable, repeatable compressional and shear data despite the very slow formation, which typically prevents high-quality measurements from being acquired using conventional sonic acquisition tools.

The multimode capabilities of the SonicScope service provided continuous compressional data with Leaky-P processing in the formation as slow as 220 us/ft and continuous quadrupole shear as slow as 460 us/ft. The compressional and quadrupole shear measurements were accurately tied in to the surface seismic, and V_p/V_s crossplots were used to identify a gas reservoir.



SonicScope675 service demonstrated a continuous compressional and shear measurement using its dedicated monopole low frequency and quadrupole firing modes. The compressional measured as slow as 220 us/ft with shear slowness up to 460 us/ft.

CASE STUDY: SonicScope 675 service identifies gas reservoir using real-time compressional and shear measurements



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