

# SonicScope 900 Service Enables Reliable Acoustic Data Acquisition in Complex Appraisal Well

Deployment of SonicScope service delivers high-quality, real-time data before formation washout compromised wireline logging, offshore Australia

## CHALLENGE

Acquire quality data prior to formation and wellbore damage to achieve a better understanding of the field's development potential.

## SOLUTION

Use SonicScope\* 900 multipole sonic-while-drilling service to deliver real-time formation evaluation data in one appraisal well.

## RESULTS

- Obtained high-quality acoustic data throughout the entire 16-in section.
- Performed world's first SonicScope 900 service in a 16-in section.
- Achieved an ROP of up to 245 m/h [804 ft/h] while drilling the 16-in section.



## Obtain high-quality LWD measurements in challenging appraisal wells

In a field in the Northern Australian basin, the upper formations consist of soft, unconsolidated sediments, while deeper zones pose drilling challenges due to reactive shale, circulation losses, and stick/slip. In previous wells, these attributes led to high risk of wellbore instability, bottomhole assembly damage, stuck pipe, and more.

To improve drilling operations, further explore the field's development potential, and aid key decision making, an operator planned to drill and evaluate an appraisal well. With limited evaluation data from the formations in the upper sections, the operator wanted to acquire high-quality LWD acoustic measurements that would reduce uncertainty and mitigate overall operational risk.

## Deliver accurate, real-time acoustic measurements

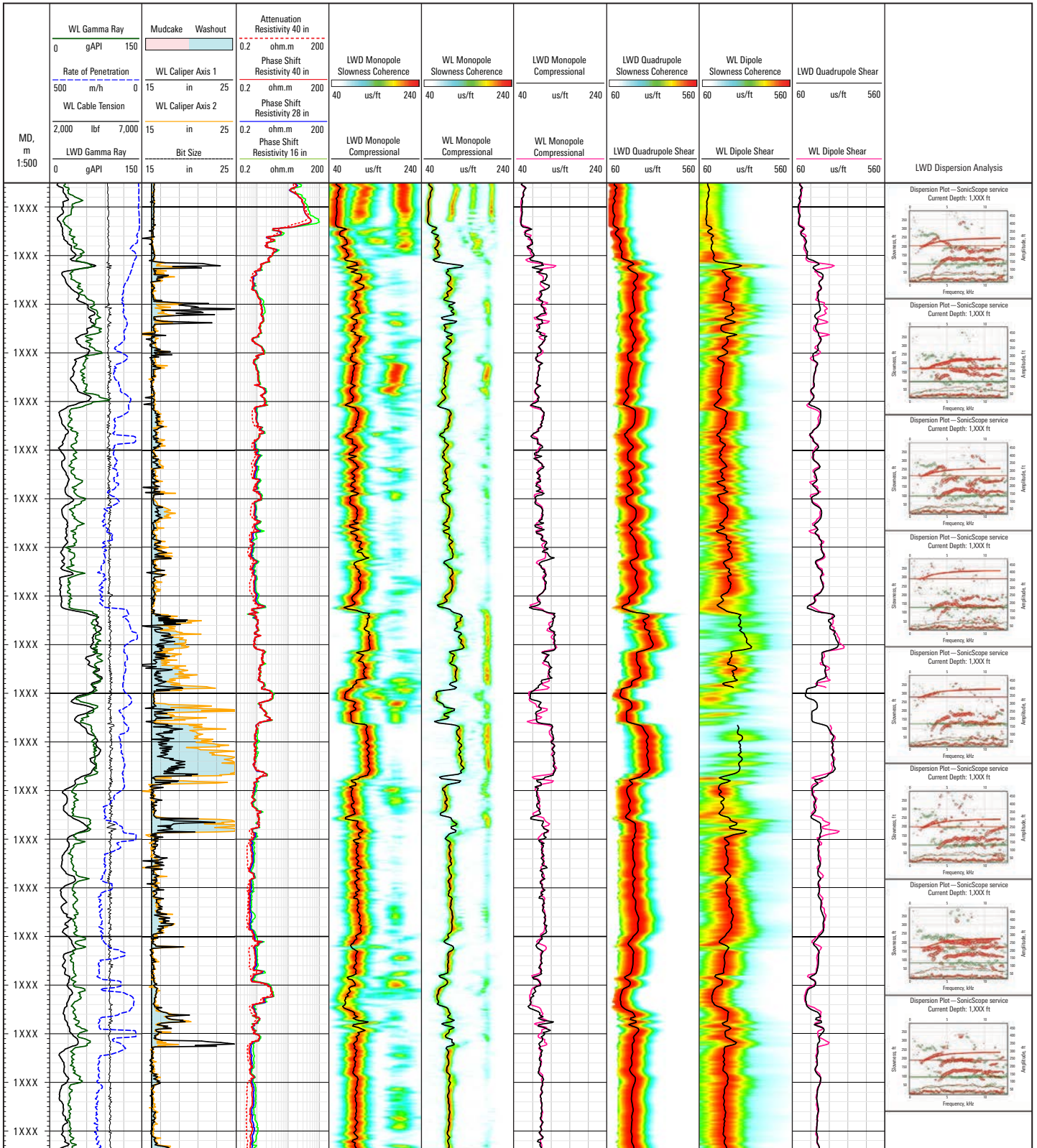
Schlumberger petrotechnical experts recommended using the SonicScope 900 multipole sonic-while-drilling service along with the arcVISION\* array resistivity compensated service in the 16-in section. The SonicScope service combines high-quality monopole and quadrupole measurements to deliver robust compressional, shear, and Stoneley wave data for accurate pore pressure and fracture gradient estimates. In addition, the arcVISION service provided real-time resistivity, gamma ray, inclination, and annular pressure-while-drilling measurements.

## Drilled with ROP up to 245 m/h while capturing high-resolution LWD data

Despite drilling challenges, the operator achieved an ROP of up to 245 m/h [804 ft/h] while drilling the 16-in section, doubling the planned ROP of 100 m/h [328 ft/h]. Using the SonicScope and arcVISION services, the operator was able to acquire accurate, reliable acoustic data—even in the unconsolidated upper section where severe washouts prevented quality logging data acquisition from wireline-conveyed measurement tools.

To obtain compressional slowness in the upper zone, Schlumberger used a leaky compressional mode (Leaky-P) processing that provides accurate data in this environment and is unique to the service. Standard monopole and quadrupole measurements were processed and delivered, providing a robust comparison with Sonic Scanner\* acoustic scanning platform data. The operator used these numbers to understand the limitations of the borehole geomechanics, ensuring optimal well path designs for future development wells and, ultimately, improving project economics.

# CASE STUDY: Operator uses SonicScope service to gather formation data from 16-in well prone to washout



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