

# CASE HISTORY

## ULT IMAGES FRACTURE ORIENTATIONS ADJACENT TO FAULT IN PERMIAN BASIN LATERAL

### APPLICATION

Reservoir Modeling  
 Completion Optimization  
 Geosteering

### TECHNOLOGY

Unconventional Logging Tool (ULT)

### LOCATION

Midland Basin,  
 Wolfcamp Shale, TX

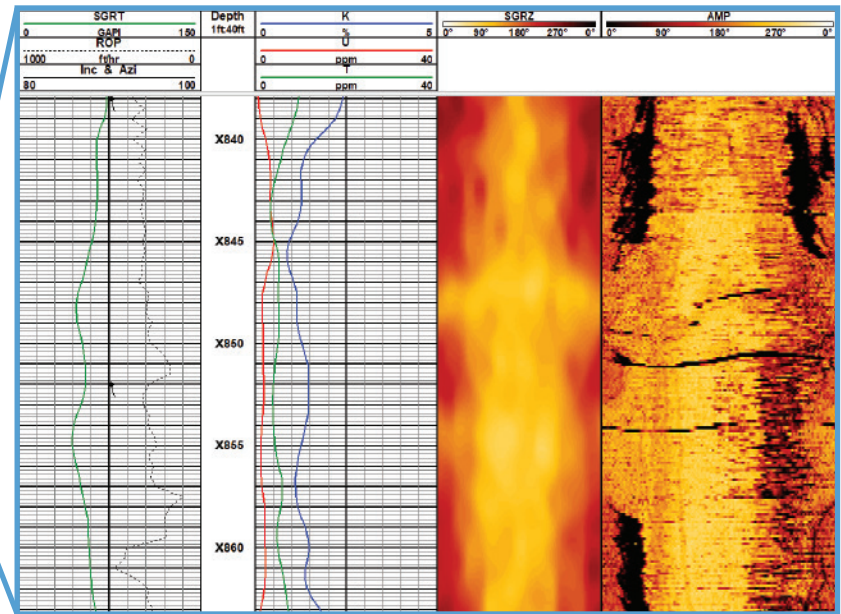
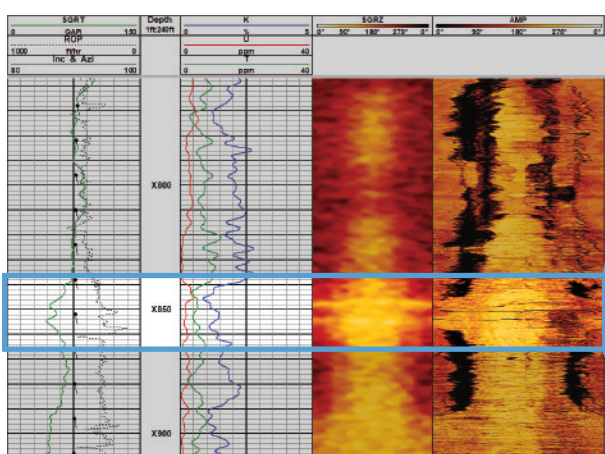
### CLIENT CHALLENGE

In order to better understand the production variations along their Wolfcamp shale laterals, an operator needed additional information regarding the stress state differences when drilling across geologic structures, such as faults.

The operator did not wish to spend the additional time running drill pipe-deployed wireline tools for the entire lateral section and were running oil-based mud, limiting the selection of LWD sensors capable of acquiring the high-resolution image data required.

### SCIENTIFIC SOLUTION

Scientific Drilling deployed its ULT tool in the drilling BHA behind a motorized rotary steerable system. The 128-sector ultrasonic images recorded natural and induced fracture orientation changes near a seismic-interpreted fault system located halfway through the lateral. In addition, the borehole caliper also recorded numerous intervals of borehole breakout when drilling across weak bedding planes in the target's clay-rich layers of the shale formation.



ULT Ultrasonic Amplitude Image Log with Spectral Azimuthal Gamma Ray showing wellbore transitioning into limestone stringer with set of natural fractures.

### CLIENT VALUE

The ULT's high-resolution ultrasonic image data recorded to memory provided the client with the stress field rotation from the induced fractures recorded near the fault.

Since the ULT was run in the drilling BHA, no additional time was spent logging with wireline tools after reaching TD. Additionally, the normal drilling ROP was not affected while running the LWD tool.