

# CASE HISTORY

## STEERING WITH BITSUB IN 11-WELL DRILLING CAMPAIGN

### APPLICATION

Wellbore Placement  
Geosteering

### TECHNOLOGIES & SERVICES

Directional Drilling  
+ TiTAN22 Performance Drilling Motor  
Logging While Drilling (LWD)  
+ BitSub Azimuthal Gamma Ray/Inclination sensor  
Measurement While Drilling (MWD)

### LOCATION

South Texas

### CLIENT CHALLENGE

The operator intended to access new reserves in a developed oil field. This required a strategic plan of re-entering older producing wells to sidetrack and drill new laterals in the virgin pay-zone. Geosteering in the oil-filled target was critical for the well's economics by maximizing reservoir exposure while reducing water production by staying above the oil/water contact. With the area's long history of lucrative production, there were numerous offset wells which required pinpoint accuracy of the wellbore placement to minimize risk associated with the close approaches required for the newly planned sidetrack laterals.

### SCIENTIFIC SOLUTION

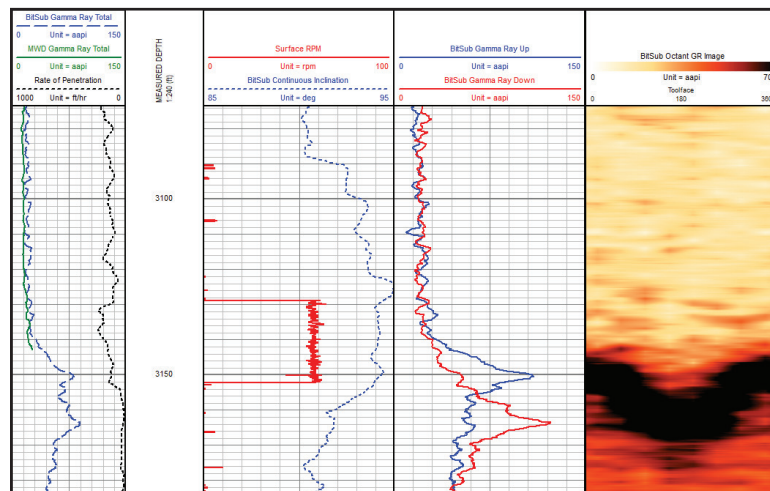
Scientific Drilling's BitSub LWD sensor package provides at-bit azimuthal gamma ray and continuous inclination, allowing the precise well placement needed for the operator's challenging project. Scientific Drilling partnered with the client to drill a total of 11 sidetrack laterals which utilized the 5" BitSub option.

The 4-sector real-time gamma ray images collected by the BitSub provided accurate interpretation of geologic structure dip and contributed to placing the laterals in-zone for 97% of the footage drilled. Continuous inclination at-bit granted accurate determination of motor dogleg output when sidetracking off the original wellbores.

### CLIENT VALUE

Implementation of the BitSub technology allowed the operator to successfully drill the laterals without a rotary steerable system (RSS). The wells' shallow TVD and short lateral lengths warranted significant cost reduction without sacrificing the reduced LWD bit-to-sensor distances required for the geosteering team to keep the well in the target zone. The at-bit inclination facilitated a collaborative effort between the directional supervisors and the operator's geosteering lead to drill the laterals on the intended target lines to allow for future potential lateral sidetrack development.

BitSub Gamma Ray Image Log showing stratigraphic marker at the top of the target window



Drilling dynamics and measurement package

