

LWD Services

Maintains 100% Contact in Difficult Section, Saves \$500k Sidetrack Job

Objectives

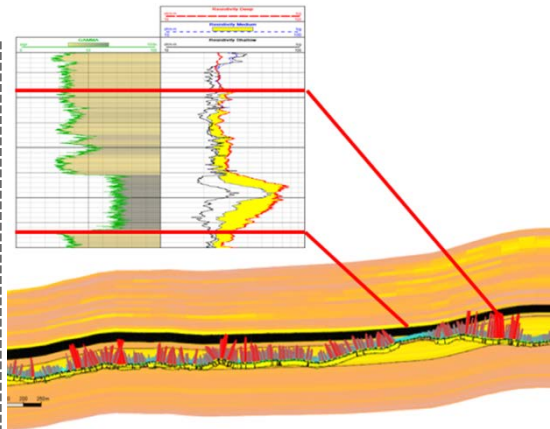
- Maintain precise contact with the pay zone in a 5,883-ft (1,793-m) horizontal well section with overlying and underlying problem zones. The operator had identified the optimal wellbore placement above a Devonian reef that presents well control issues, and below an overlying coal formation that causes wellbore stability issues. The operator had lost tools, failed to reach total depth (TD), and been unable to complete nearby wells that ventured into the coal formation.

Our Approach

- Weatherford proposed a logging-while-drilling (LWD) string with the multifrequency resistivity (MFR™) sensor and high-temperature azimuthal gamma ray (HAGR™) sensor. The LWD services team performed extensive pre-job modeling using data from offset wells. They selected real-time mnemonics that could best identify and avoid the overlying coal zone. After reviewing the pre-job model, the client decided to run the HAGR and MFR in the build and horizontal sections.
- Using Weatherford Visean real-time LWD display system, the client drilled the build section and reached the intermediate casing point. While intermediate casing was placed, the Weatherford team analyzed the MFR memory data and further tailored the real-time mnemonics for actual well conditions.
- The client continued drilling the horizontal section with the LWD data being fed into the client geosteering model. Within 656 ft (200 m), the LWD toolstring indicated an upcoming breach into the coal formation that was not indicated in the reservoir model. The client adjusted steering downward to remain in the pay zone.
- The client continued to adjust the model in real time as they encountered bed boundaries while drilling. The hole reached a planned TD of 15,748 ft (4,800 m) with no major complications or downtime.

Value to Client

- Weatherford LWD services provided 100% pay-zone contact without nonproductive time.
- The operation delivered a pacesetter TD \$50,000 under budget.
- The real-time data enabled the operator to avoid trouble zones that had caused a shorter-than-planned drilling depth or a costly sidetrack in nearby wells. This saved the operator an estimated US \$500,000.



The Weatherford LWD toolstring indicated an upcoming breach into the coal formation that was not indicated in the client geosteering model. This enabled the client to proactively steer downward and avoid contact with the overlying coal formation.

LOCATION

Alberta, Canada

WELL TYPE

Onshore horizontal

HOLE SIZE

6.14 in. (156 mm)

HORIZONTAL SECTION LENGTH

5,883 ft (1,793 m)

TOTAL MEASURED DEPTH

15,748 ft (4,800 m)

PRODUCTS/SERVICES

- LWD services
- MFR sensor
- HAGR sensor

