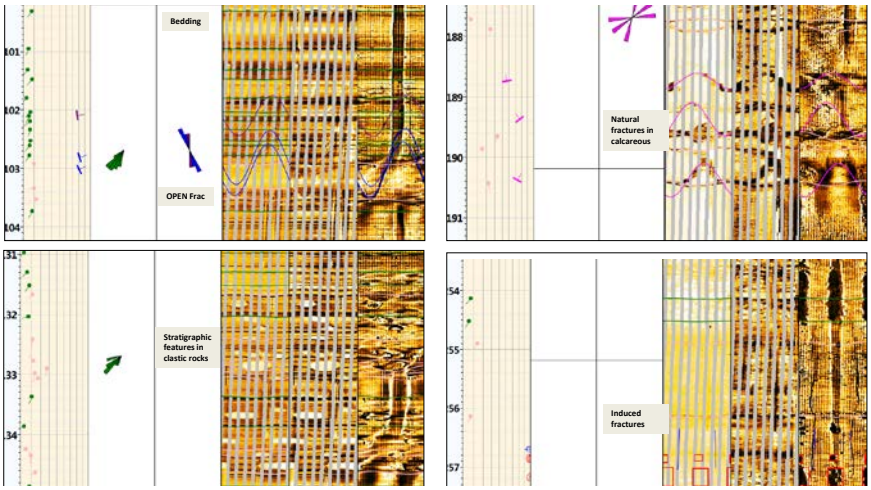
Compact™ COI and UMI Deliver High-Quality Structural, Stratigraphic, and Fracture Data in a Challenging Oil-Base Mud Well



The combination of two different measurement principles—micro-resistivity and acoustic amplitude—enables the identification of several formation features. This data provides the clarity needed for an accurate geological characterization of the reservoirs.

Objectives

- Gather petrophysical and geomechanical data, analyze data related to stratigraphic sequences and natural fractures, and deliver in situ stress analysis and rock mechanical properties in an oil-base mud (OBM) well.
- Reduce reservoir uncertainty and optimize the well completion.

Our Approach

- Weatherford deployed Compact quad-combo tools, the Compact oil-base mud microimager (COI), and the standard ultrasonic microimager (UMI) for the petrophysical and geomechanical analysis of the well.
- COI and UMI data enabled detailed stratigraphic interpretation and fracture analysis, including differentiation of open and closed natural fractures. Data from areas with induced fractures revealed critical information related to in situ stress and mechanical behavior of different formation layers.
- The bottom section of the well was rugose. However, images from the UMI related to amplitude and travel time of ultrasonic waves complemented the COI analysis.

LOCATION
Neuquen Basin, Argentina

WELL TYPE
Onshore, vertical, oil, OBM

FORMATION
Unconventional, carbonate

NUMBER OF RESERVOIRS
5

HOLE SIZE AND ANGLE
8-3/4 in., 5°

TOTAL DEPTH
8,146 ft (2,483 m)

PRODUCTS/SERVICES
- Compact quad-combo tools
- COI
- UMI

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Value to Client

- From the data and analysis that Weatherford provided, the operator was able to capture a comprehensive geological picture of the reservoir that was previously very difficult to get in an OBM environment.
- By using Weatherford Compact and standard ultrasonic wireline technology, the operator obtained high-quality data safely and efficiently.
- The combination of stratigraphic and fracture analysis with petrophysical analysis and rock mechanical properties reduced reservoir uncertainty and optimized the well completion.