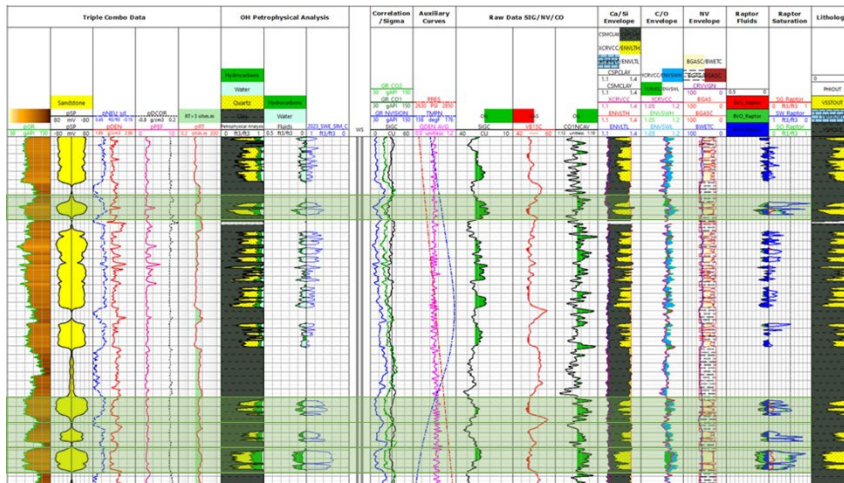


Raptor™ 2.0 Cased-Hole Evaluation System

Confirms Oil Saturation in Low-Resistivity Pay Zones, Achieves 510 BOPD from Newly Perforated Intervals



The composite log including the following: triple-combo data, openhole petrophysical evaluation, correlation and sigma curves, auxiliary curves, raw data (Sigma, C/O, and N-Vision), Ca/Si envelope, C/O envelope, N-Vision envelope, Raptor fluids, Raptor saturation, and lithology.

LOCATION
Colombia

WELL TYPE
Producer

HOLE SIZE AND ANGLE
8-1/2 in., 31°

CASING SIZE
7 in.

TEMPERATURE
160°F (71°C)

PRODUCTS/SERVICES

- Raptor 2.0 cased-hole evaluation system
- Wireline services
- Interpretation and Evaluation Services

Objectives

- Evaluate oil saturation in a low-resistivity reservoir zone due to mineralogical complexity.
- Integrate results with stratigraphical correlations, static pressures, chromatography curves, and dynamic reservoir properties to confirm new intervals to perforate.

Our Approach

- After producing the reservoir in a deeper zone for some time (before the log, the well was closed), an operator planned to change the toolstring and the reservoir team wanted to run a saturation log in the upper zone to correlate with stratigraphical correlations, static pressures, chromatography curves, and dynamic reservoir properties to confirm the oil presence in a low-resistivity zone.
- The Weatherford Interpretation and Evaluation Services (IES) and the operator's reservoir teams recommended running the Raptor 2.0 cased-hole reservoir evaluation system during the workover operation to obtain oil saturation data.
- The team acquired high-quality data while meeting all safety standards by performing consecutive runs in C/O, N-Vision, and Sigma modes. The operation marked the first time that Weatherford ran the Raptor in C/O mode in this field.



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- IES specialists processed the data, interpreted the C/O and N-Vision logs, and delivered the fluid saturation answer product to the operator on time. The findings confirmed oil saturation in the fourth intervals.
- Based on the Raptor system interpretation, the operator defined the intervals to perforate, and the well re-started producing with 30% basic sediment and water (BSW). The production tests showed 510 BOPD, exceeding the initial production value promise, which was less than 100 BOPD.

Value to Customer

- Weatherford demonstrated a safe and quality option in the acquisition, processing, and interpretation of pulsed neutron logs that can be reliably used for fluid saturation. The operator shared that these results exceeded expectations compared to what had been received from other companies in the past.
- The Raptor 2.0 cased-hole evaluation system confirmed by-passed zones due to low resistivity and disproved the idea that the deeper zones are better for producing. The higher-than-expected production rate of 510 BOPD exceeded the total field production, close to 300 BOPD.
- Based on the impressive results, the operator wants to begin workover campaigns on the field to increase oil production focused on these low-resistivity pay zones as discovered by the Raptor 2.0 system.
- The Raptor 2.0 system is now considered the preferred technology of the operator's petrophysicists due to the high-quality of the information and reliability of the interpretations.

