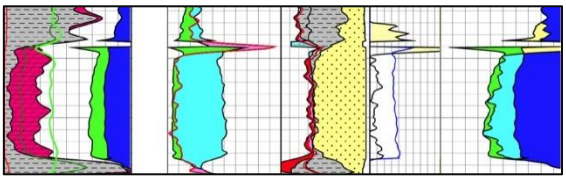
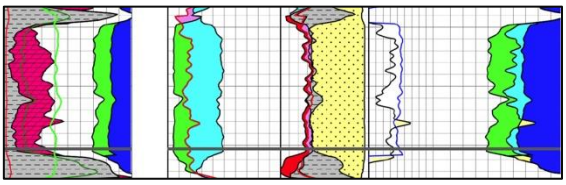
Raptor™ 2.0 Cased-Hole Evaluation System

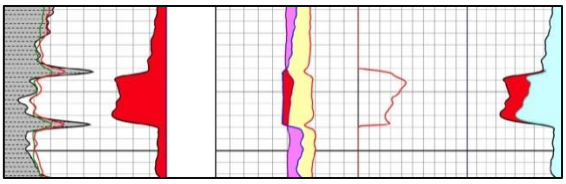
Identifies Bypassed Pay Zones, Corrects Historical Openhole Data in Complex, Unproven Field



Well 1–Historic openhole data suggested a potential oil-producing zone. After analysis, the Raptor 2.0 data indicated predominately water.



Well 2–Openhole data suggested intermixed water and oil zones. After analysis, the Raptor 2.0 data indicated an oil-producing zone.



Well 3–Openhole data suggested intermixed water and oil zones. After analysis, the Raptor 2.0 data indicated an gas-producing zone.

All saturation data was confirmed by production testing.

Objectives

- Assess hydrocarbon potential and identify bypassed pay zones in an unproven and complex reservoir.
- Validate historical openhole data. The reservoir has a high degree of textural variation and a wide range of pore-size distribution. These factors add difficulty and uncertainty to conventional openhole log analysis and saturation results.

Our Approach

- Following a thorough analysis of the limited openhole data, a Weatherford wireline and petrophysical team recommended the Raptor 2.0 cased-hole evaluation system. The team selected three candidate wells. Because the reservoir contains both oil and gas reserves, the Raptor 2.0 tool would be run in both the advanced carbon-oxygen (C/O) mode and in the proprietary N-Vision™ modes. These modes would identify and differentiate between oil-liquid and gas-liquid saturations.
- The team deployed the Raptor 2.0 tool in each of the three wells. In Well 1, openhole data suggested a potential oil-producing zone. After analysis, the Raptor 2.0 data indicated predominately water.
- In Wells 2 and 3, openhole data suggested intermixed water and oil zones. After analysis, the Raptor 2.0 data indicated an oil-producing zone in Well 2, and a gas-producing zone in Well 3.

LOCATION
Western Canada

WELL TYPE
Unconventional oil and gas development

FORMATION
Heterogeneous sandstone and chert

NUMBER OF WELLS
3

HOLE SIZE
7-7/8 in. (200 mm)

LINER SIZE
5.5 in. (139.7 mm)

WELL DEPTH
2,890 ft (890 m)

PRODUCTS/SERVICES
- Wireline services
- Raptor 2.0 system
  - C/O acquisition mode
  - N-Vision acquisition mode
- Interpretation and evaluation services

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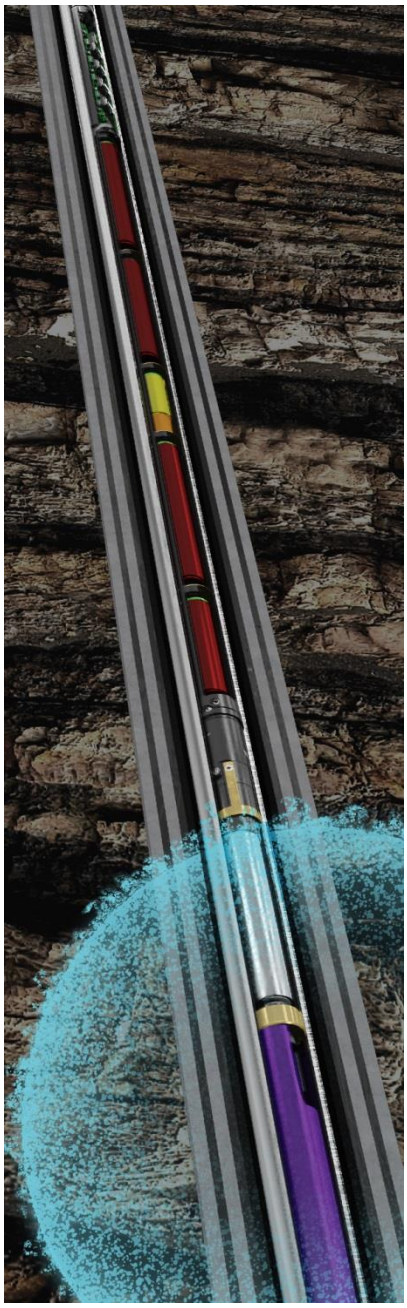
Our Approach (continued)

- Immediately after log analysis, the customer tested the saturation data by stimulating and production testing all three wells. All three produced exactly as indicated by the Raptor 2.0 system.

Value to Customer

- Weatherford wireline services used the Raptor 2.0 cased-hole evaluation system to correctly determine production viability and hydrocarbon potential in an unproven reservoir. Proven by production testing, the saturation data correctly identified the fluid mix in all three wells. This enabled the customer to establish initial production and to begin planning additional recompletion campaigns in the reservoir.
- The operation showed the historical openhole data to be inaccurate. Raptor 2.0 data updated the reservoir model create a viable production plan for the field.



The Raptor 2.0 cased-hole evaluation system collected accurate oil-liquid and gas-liquid saturations.

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