Raptor™ 2.0 Cased-Hole Evaluation System

Delivers Accurate Saturation Data in >80 Wells, Optimizes Production Strategy For Water-Flood Project

Objectives

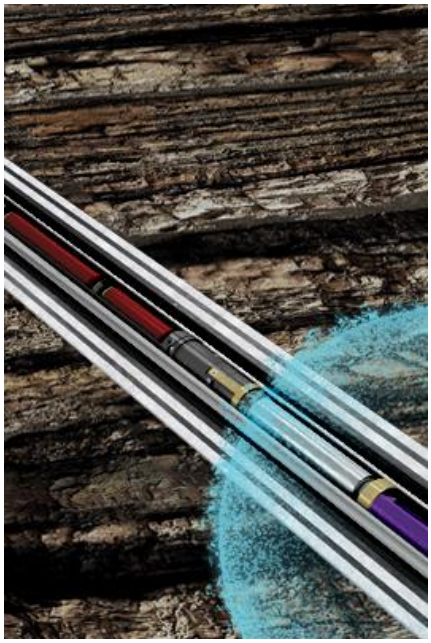
- Monitor the sweep efficiency for a large water-flood project that spans two oil-producing fields.
- Obtain accurate saturation data to develop production strategy, improve reservoir sweep, and maximize total oil production.

Our Approach

- The local Weatherford wireline and petrophysical team recommended using the Raptor cased-hole evaluation system to log more than 80 wells spread between the two producing fields. Deployed in advanced carbon-oxygen (C/O) mode, the data for each well would be processed with the Raptor C/O answer product to determine oil-water saturation.
- The team first deployed the Raptor 2.0 within a group of injector wells containing a representative water leg at 100% water saturation. Using an integrated response characterization developed for each well, the team determined lithology and oil-water saturation from the inelastic carbon-oxygen and calcium-silicon ratios measured at each of the four detectors. These measurements established normalization parameters for the remaining wells.
- Moving to the wells without water legs, the petrophysics team used a calibrated field model technique to refine the saturation measurement. The results demonstrated consistent alignment and accuracy with the initial water leg wells.
- The petrophysical team processed the data from all wells and created a complete sweep-efficiency analysis for both of the oil-producing fields.

Value to Client

- The Weatherford Raptor 2.0 cased-hole evaluation system provided a sweep-efficiency analysis across more than 80 wells spread over two producing fields. The system identified poorly swept producing sands and helped the customer to improve the overall injection strategy, which increased field-wide oil production.



The Raptor 2.0 cased-hole evaluation system acquired accurate water-sweep analysis data for more than 80 wells across two producing fields.

LOCATION
Barmer, India

FIELDS
Mangala and Bhagyam

WELL TYPE
Vertical water injector and monitor wells

NUMBER OF WELLS
>80

CASING SIZES
4-1/2 in., 7 in., and 9-5/8 in.

WELLBORE TEMPERATURES
140 to 170°F (60 to 77°C)

WELLBORE PRESSURES
1,600 to 1,700 psi (11.03 to 11.72 MPa)

WELL DEPTHS
2,000 TO 4,000 ft (610 to 1,220 m)

PRODUCTS/SERVICES
- Wireline services
- Raptor 2.0 system
- Interpretation and evaluation services

Weatherford®

© 2017 Weatherford. All rights reserved. 12549.00

Weatherford products and services are subject to the Company's standard terms and conditions, available on request or at weatherford.com. For more information contact an authorized Weatherford representative. Unless noted otherwise, trademarks and service marks herein are the property of Weatherford and may be registered in the United States and/or other countries. Weatherford products named herein may be protected by one or more U.S. and/or foreign patents. Specifications are subject to change without notice. Weatherford sells its products and services in accordance with the terms and conditions set forth in the applicable contract between Weatherford and the client.