

Marcellus Shale, Pennsylvania

Finding success on the over- mature fringes of organic shale plays

Halliburton CoreVault® RFP system and XMR™ service accurately assessed the field's geologic trend for informed field planning

CHALLENGE

- Economically determine production potential of mature asset for decision making
- Need timely solutions and recommendations

SOLUTION

- Deploy the CoreVault® RFP (rock-fluid-pressure) system and the new Xaminer® Magnetic Resonance (XMR™) service to evaluate the commercial potential of the reservoir

RESULT

- Conducted five CoreVault runs, recovering 49 rotary sidewall cores
- Provided NMR reservoir characterization to determine reservoir storage volume and reservoir fluids
- Provided an enhanced understanding of the reservoir quality and development risks involved

Overview

An operator in an unconventional play wanted an improved understanding of the subsurface reservoir to characterize thermal maturity near a boundary of its field. Changing source rock maturity, especially as it relates to pore pressure, is a strong driver in field planning. Halliburton was selected to analyze the reservoir and provide a better understanding of the field's geologic trend, as well as offer timely solutions and recommendations. The CoreVault® RFP (rock-fluid-pressure) system, integrated with additional petrophysical measurements, including the new Xaminer® Magnetic Resonance (XMR™) service, acquired samples swiftly and economically. The petrophysical analysis and core samples retrieved by Halliburton provided guidance for informed decision making on the future of this unconventional asset.

Challenge

Capital-intensive unconventional E&P projects necessitate that a clear understanding of the reservoir is acquired before development occurs to minimize risk and maximize potential. A Marcellus Shale operator in an area of high-thermal maturity needed to make a decision about whether to develop its asset or not. Faced with an expensive plan to frac several development wells to gather the necessary data, the operator sought a more efficient, economical solution and reached out to Halliburton to provide a thorough analysis of the field's production potential.

Solution

Halliburton recommended using its innovative CoreVault® RFP system, which allows operators in low-permeability and unconventional reservoirs an opportunity to collect selective wireline core and fluid samples. Pressure-sealed, wireline-conveyed rotary sidewall cores eliminate fluid and gas loss during recovery for enhanced fluid property analysis and improved reserve and production performance estimates. This unique solution provides an analysis of the complete reservoir. It's the industry's only system to combine downhole fluid sampling, coring, and pressure-temperature measurements for safer, more-reliable production forecasting.

CASE STUDY

Additionally, the Halliburton XMR service, which offers near-density log vertical resolution, was deployed to evaluate the reservoir's full range of pore sizes. Direct reservoir quality assessment is provided from fractionalizing the total MR fluid-filled porosity into components of microporosity, capillary-bound fluids, and moveable fluid volume. Other petrophysical tools, as well as subsurface and regional data analysis, were employed to round out the solution.



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The industry-first CoreVault® RFP system combines downhole fluid sampling, coring, and pressure-temperature measurements for more accurate production forecasting.

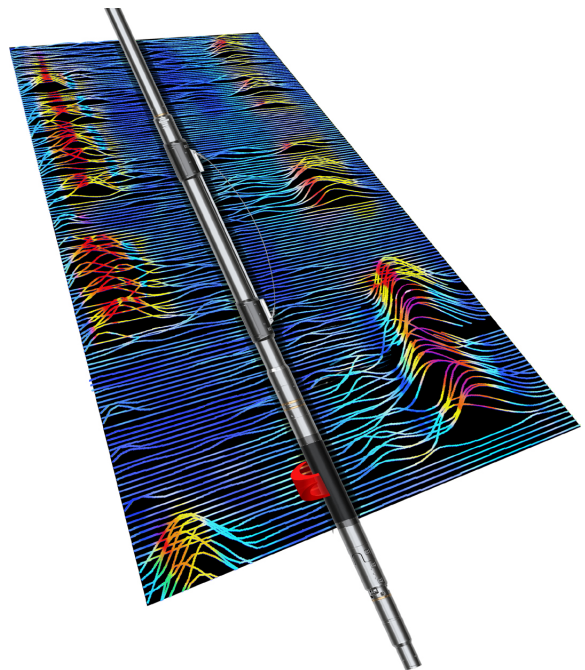
Result

Five CoreVault® runs were conducted within the wellbore, recovering 49 rotary sidewall pressure cores. Enough data on this well was collected to predict the whole geologic trend in the area. By combining the CoreVault RFP and XMR™ data results with regional and specific subsurface information, Halliburton was able to transfer to the client a conclusive analysis of the reservoir characteristics, a better understanding of its economic value, and the risk associated with its reservoir. Wellsite surface analysis of the CoreVault RFP samples and XMR data revealed very little pressure, indicating that this asset would be unfavorable for production. The operator is currently reevaluating its options for the future of this reservoir.

**CoreVault® RFP system
and XMR™ service**

**helped predict this
reservoir's future**

HAL124001



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The Xaminer® Magnetic Resonance service combined with the CoreVault® RFP system provided the necessary data to make an informed decision about this field.

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

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