

Case Study: Identifying reservoir communication between wells

GEOLOG

GEOIsotopes

Client

Major oil company
Offshore south east Asia

Challenge

Client wanted to confirm if the lower miocene prospect across two development wells had hydrocarbons that were connected and identify fluid tops.

Solution

Deploy a real-time isotopic gas analyzer to identify the thermal maturity and origin of the hydrocarbons to determine if each well had developed with the same gas signature. Compare Isotopic signatures for similarities to determine a connected reservoir.

Results

The Geol isotopes services was able to analyze the hydrocarbon signatures of carbon 13 isotopes of methane, ethane and propane continuously across different geological facies on both wells. The results provided information to rule out compartmentalization. Fluid tops were identified using isotopic gas data.

Value

The real-time isotopic analysis has helped the client to identify connected zones between wells in the Lower Miocene target. The isotopic signatures from each well allowed for a better understanding of the secondary processes for biodegradation. Data can now be used for future production allocation analysis using geochemistry techniques.

Services used

GEOIsotopes

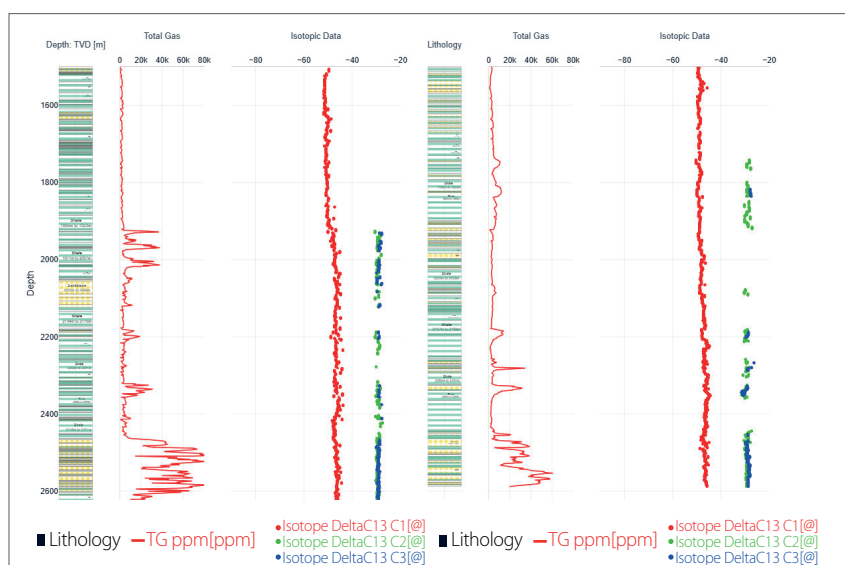


Figure 1. Isotopic signatures between wells matched for methane, ethane and propane, confirming that the petroleum system model was correct with hydrocarbon fluid connection between wells.

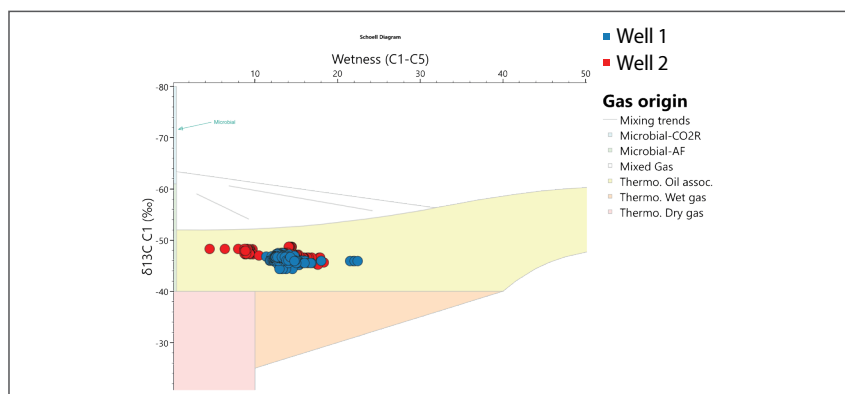


Figure 2. Schoell Diagram confirming the same gas origin

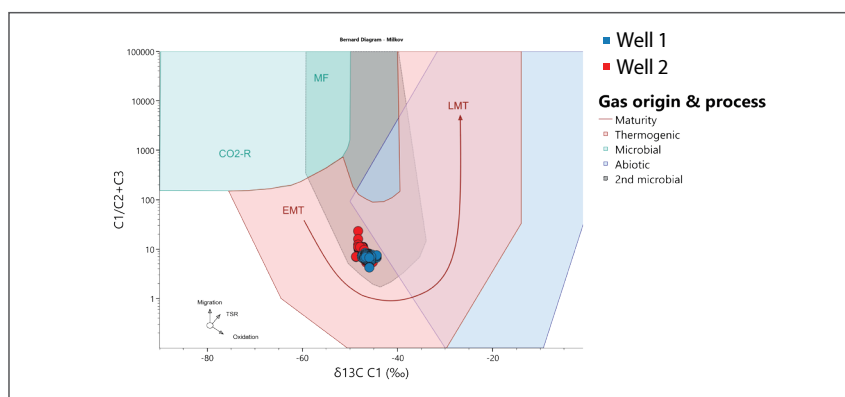


Figure 3. Bernard Diagram demonstrating the same thermogenic hydrocarbon between wells