
Combining New Core Data with Surveillance Sharpens the Geological Understanding of a Decades - Old GOGD Field Development

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Historic management of the GOGD process (gas oil gravity drainage, dependent on fractures and matrix permeability) within an elongate, tilted carbonate reservoir had been relatively hands off. This was based on the understanding of that GOGD occurs over long periods of time with little enhancement possible beyond the existing well stock.

Cores recovered in 2003-2004 for understanding the waterflood in the same field have provided continuous recovery of reservoir fabrics over the GOGD layers. A diagenetic study has promoted a new burial model. Combining fabric characterisation with the diagenesis has upgraded the understanding of matrix production in this GOGD field. A review of existing borehole image data has complementarily linked the matrix with fracture description, extending this new understanding into the horizontal development wells.

Integration of production log surveillance has enabled a dynamic characterisation of the matrix - fracture interaction as occurring in individual wells, rather than general conceptual models. This has sharpened the geological understanding used for reservoir management, revealing opportunities for infill drilling, beyond a traditional approach of GOGD oil rim lowering.
