
Fast-Track Reservoir Characterization of a Subtle Paleocene Deep Marine Turbidite Field Using a Rock Physics- and Seismic Modelling-Led Workflow

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The Brenda field in UK North Sea Block 15/25b (see Figure 1) has undergone very rapid exploration and appraisal in 2004 and is now poised to move into the production phases over the next 12 months.

Over 12 “cluster” penetrations of the Palaeocene Upper Balmoral sandstone reservoir have been drilled and a substantial amount of reservoir data has been collected. The objectives of the project required fast assimilation and integration of rock physics and inversion into operations to ensure that each well was targeted and optimally drilled with the benefit of the enhanced understanding of the previous data collected- in practice this involved making 2-3 well prognoses for non vertical wells ahead of drilling.

We describe the combination of rock physics driven seismic interpretation of attributes, and a new technology for “inversion of inversion” for reservoir characterisation used to fast track the Brenda field previously considered non economic.

The Brenda net oil reservoir varies from 10m to 30m in thickness with 32API oil with low GOR oil trapped by a combination of structural and stratigraphic elements. The understanding of the relative importance of the two major controls and modifiers such as hydrostatic gradients is still evolving.
