Reservoir Modelling, North Sea, UK

Project Overview

Petrenel was engaged to undertake a detailed subsurface technical review and construct a full field dynamic model of a large producing gas field in the Southern North Sea, UK. This study was commissioned to provide an assessment of the field's performance, a gas production forecasting tool, as well as to identify other appropriate actions to maximise asset value.

Petrenel's Approach

- Undertook well correlations and reservoir parameter modelling that included zone definition and layering, saturation determination and permeability analysis
- Analysed PVT data
- Prepared property grids and maps
- Constructed a geological and reservoir simulation model using the PETREL© suite of programmes
- The performance of the model was fully history matched against the available production and pressure data
- Various development options were considered to maximise value from the field
- Prepared production and cost forecasts
- Estimated economic recovery for the individual activities
- Identified uncertainties and risks that could impact on future performance and ultimate recovery

Outcome and Client Benefit

The dynamic modelling study was used to identify additional production and development opportunities including initiating intermittent flow of the existing closed-in wells, the installing of velocity strings, the de-bottlenecking of facilities and drilling of in-fill wells. Some of these activities led to a signi¬ficant improvement in recovery.

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