



Interpretation, Geomodeling and Simulation: Evaluation of Ben Nevis-Avalon 'N' Fault Block in Hibernia Field

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Abstract

An evaluation of a Ben Nevis-Avalon (BNA) opportunity is described. The BNA is a secondary reservoir in Hibernia field that has been under development since 2000. In late 2004 a producer (B-16_48) was drilled into the southwest BNA, 'N' Block. Technical analysis of the supporting water injector was required to justify the first development of previously untapped reservoirs.

A sector block model was iteratively interpreted, populated with geological properties, modeled geophysically and simulated to evaluate and position the proposed water injector. Acoustic impedance data has recently proved to be a good reservoir quality indicator and was used to influence modeled reservoir properties. Timelines were shortened by building the geological models simply and at the same scale as the simulation models. This allowed the group to run multiple iterations of the geomodel to test different scenarios. 'Petrel' software enabled the process by making it possible to perform most geoscience and geomodeling tasks within the same program.

Due to platform slot constraints, the well was designed as a dual injector in the Hibernia field, targeting both N Block and nearby 'Q' Block. Unanimous approval of the well proposal was received by all six shareholders in the Hibernia partnership. Real-time ADN data and updated seismic data were used to geosteer the well for an optimum trajectory. The injector well was drilled in late 2005 and encountered 288m MD sand (71m TVD). Material balance STOOIP was found to be similar to predrill estimates.