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The Role of Antithetic Faulting in Setting Up the Hudson Play, East Shetland Basin, UK Northern North Sea

The Brent Play of the East Shetland Basin (UK North Sea) is predominantly controlled by easterly dipping planar normal faults formed during the Late Jurassic rift episode. The Hudson field is an important exception to this general rule since it has resulted from motion on westerly-dipping antithetic planar normal faults formed to accommodate rollover into the East Shetland Basin Bounding Fault. Furthermore, it is present at an embayment in the bounding fault where the platform is bounded by two intersecting faults trending SSE-NNW and NNE-SSW. Whilst it has been widely accepted that the East Shetland Basin Bounding Fault moved early during the late-Jurassic rift episode and accumulated significant slip as rifting progressed, recent 3-D seismic interpretation over the area has shown that it moved late, and primarily after the rifting period and does not have a significant thickness of synrift deposits associated with it. In reality, structure in the Greater Hudson area is dominated by faults that lie to the east and a regional tilting of pre and synrift sediments into the fault that bounds the Tern-Eider Ridge is observed. Recognition that prospectivity exists in relatively small, antithetic fault blocks like Hudson, may reawaken exploration interest in western parts of the East Shetland Basin.