UK Onshore Licence PEDL 151
Relinquishment Report

Licence Details

Licence Number:	PEDL 151
Licence Round:	UK 12th Onshore Licensing Round
Effective Date:	1 October 2004
Licence Type:	Petroleum Exploration and Development Licence (Onshore)
Block Number:	UK National Grid Blocks SU70 (part)
Operator:	NP Solent Limited ("Northern") (62.50%)
Partners:	Solent Exploration Limited (10.00%) Oil & Gas Investments Limited (1.25%) Montrose Industries Limited (2.50%) Magellan Petroleum (N.T.) Pty Ltd (11.25%) Hereward Ventures Plc (10.00%) Black Rock Resources (UK) Ltd (2.50%)
Work Programme :	Drill-or-Drop Work Programme; Part 1: Reprocess 108 km of 2D seismic data, Part 2: Drill one well into the Gt Oolite and Sherwood Sandstone

Licence Synopsis

PEDL 151 covers part of Solent water located between the Isle of Wight and mainland England.

Figure 1: PEDL 151 Location Map

Following the unsuccessful Sandhills-2, 2Z appraisal well in PEDL 113 and the dry hole result of the Bouldnor Copse-1 well drilled on PEDL 089 in 2005, which reduced the perceived prospectivity to zero, the PEDL 151 Group decided to relinquish the licensed area in its entirety at the end of its second year in 2006 without fulfilling the seismic reprocessing obligation, which was waived by the DTI.

Exploration Activities

The Group has not undertaken any new seismic acquisition on Licence PEDL151 nor drilled any wells. The Group has acquired all of the existing 2D seismic line data over the Licence as part of an extensive regional database that it has built up (Figure 2) which includes two 3D surveys. Data has also been acquired for all of the wells in and around the Licence that have been publicly released.

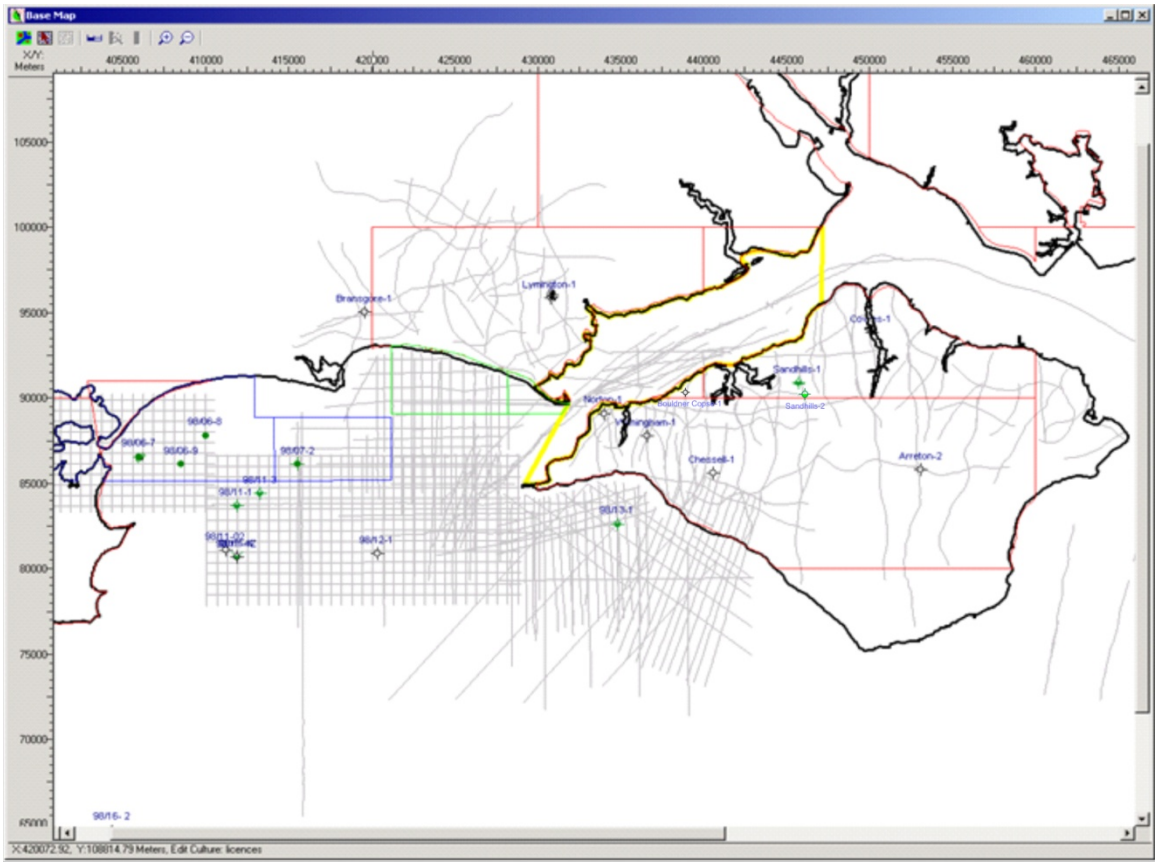

Figure 2: PEDL 151 Seismic and Well Database

Prospectivity Analysis

The primary reservoir target at the time of the Licence award was identified as being the Triassic Sherwood sandstone, the main productive reservoir at Wytch Farm to the west in Dorset, with a secondary target being the Great Oolite, which was oil bearing in the Sandhills-1 well. Of particular interest with respect to PEDL 151, was the recognition of a regional high on the Isle of Wight onto which the Sherwood sandstone pinches out as can be evidenced on seismic and by well control, forming the primary play concept within the application area.

The primary source beds, the Lias shales, are interpreted to have been buried sufficiently deeply to generate oil in the area to the south of the Bembridge/Isle of Wight/Purbeck Disturbance. Oil and/or gas generation and migration is interpreted to have commenced during Lower Cretaceous times and to have continued until the area underwent significant inversion in response to the Alpine collision further south. At this time, during the Miocene, the source rocks were lifted out of the maturity window and oil/gas generation ceased. It is not clear whether the Oxford Shale has ever been buried deeply enough to become mature for hydrocarbon generation, although it is interpreted that the Kimmeridge Shale definitely has not within the Bournemouth Bay area.

Structures in which oil/gas has been discovered in the Wessex Basin (Wytch Farm, 98/07-2) were predominantly present as trapping mechanisms at the time of hydrocarbon generation and migration. They generally take the form of a horst block bounded by normal faults with sufficient throw to have caused juxtaposition of reservoir rocks against an effective seal across the faults, prior to later inversion tectonics.

Young structures, i.e. those formed during the major Miocene inversion episode, could trap oil or gas which may have leaked from an existing accumulation breached during inversion, or by late stage oil/gas generation as proven by wells in Block 98/11 in Bournemouth Bay. The Kimmeridge oilfield which produces oil from the Callovian Cornbrash limestones is a young inversion anticline; however the fact that more oil has been produced here than the mapped structure would have ever been capable of containing suggests that the reservoir remains plumbed–in to some form of active hydrocarbon sourcing mechanism.

Prospectivity Review

A major long-lived structural high was identified and mapped on the Isle of Wight extending northwest across the Solent beyond the Lymington-1 well. It is interpreted that the down-to-the-north Sandhills/Lymington fault which forms the northern boundary of this feature would have acted as a barrier to hydrocarbon migration into pre-Cretaceous section. Further, the hanging wall of this fault was inverted locally during the late Tertiary to create anticlinal structures which are, however, interpreted to be non-prospective as a result of their postdating the time of hydrocarbon generation and migration.

The Sandhills-1 well was drilled by British Gas in 1982 on the main Isle of Wight high feature and encountered oil in the Middle Jurassic Great Oolite formation, but the well was not flow-tested as the oil was interpreted to be low gravity. The Sherwood Sandstone section within this well represents deposits of a localised and proximal nature which may be separated from the fluvial dominated facies seen in the wells to the south and west by an intervening structural high, bald of Sherwood equivalent deposits, or may also be separated by a minor, down-to-the-north fault close to the well location that would place this section in a migration shadow for oil sourced from the south. A seismic line through Sandhills-1, B92-60 (Figure 3), can be interpreted as illustrating both of the above elements, either of which would provide a mechanism to explain the water-wet sequence within the Sherwood section encountered in the well.

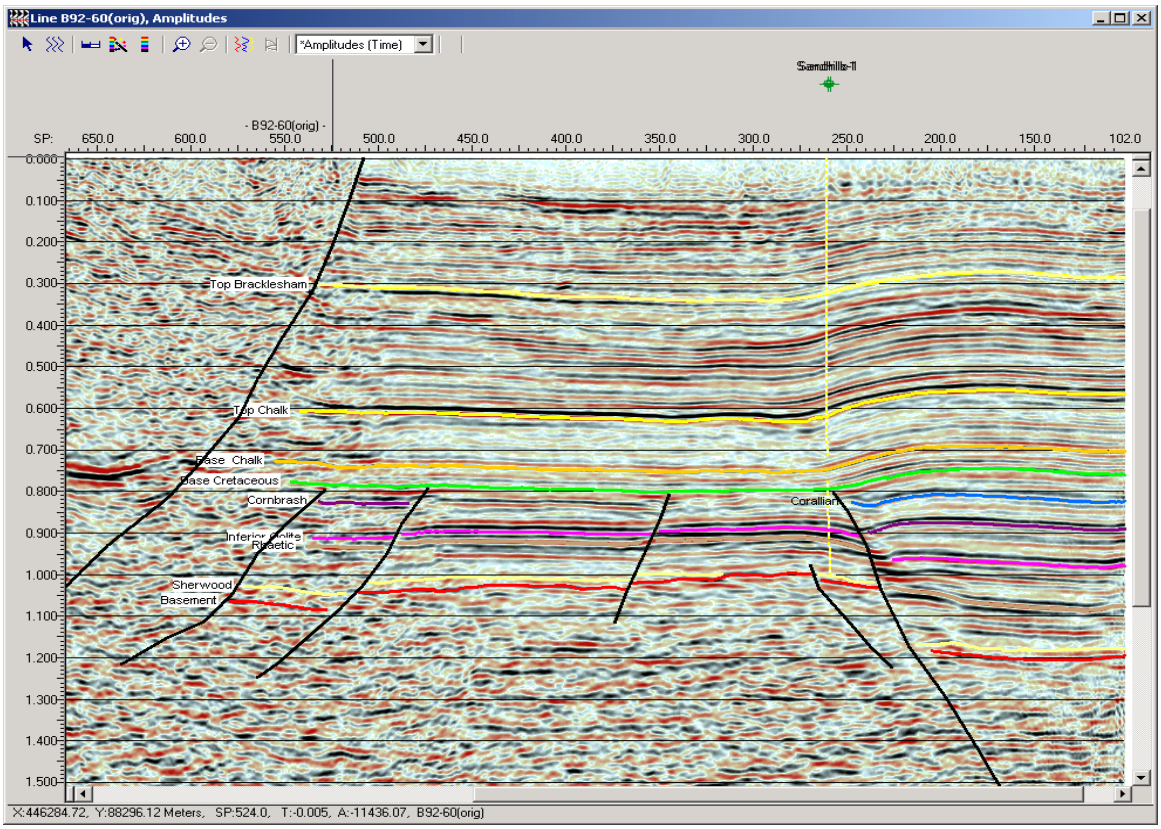

Figure 3: Seismic Line B92-60

Two wells, Wilmingham-1 and Norton-1, were drilled by Sun in 1984 and Clyde in 1989 respectively, both located on the southern flank of the main high structure and interpreted as being off structure. Neither well had hydrocarbons but each of them penetrated a significant thickness of Triassic Sherwood Sands (450' and >194' respectively) interpreted to be dominantly in fluvial facies.

Northern's regional evaluation mapping indicated that the main Isle of Wight high extends north-west across The Solent and onto the mainland, at least as far as Lymington-1. It was interpreted that the Great Oolite (as mapped at Inferior Oolite) structural high extends offshore into PEDL 151 where independent culminations are also mapped. The isopach map for the "Base Cretaceous" unconformity to Inferior Oolite interval, which indicates the structure of the Great Oolite at the time that oil generation and migration is interpreted to have commenced, illustrates these closures (Figure 4). The Sandhills-2, 2Z and Bouldnor Copse-1 wells penetrated this high and were found to be oil bearing in the Great Oolite limestone but with heavily biodegraded oil.

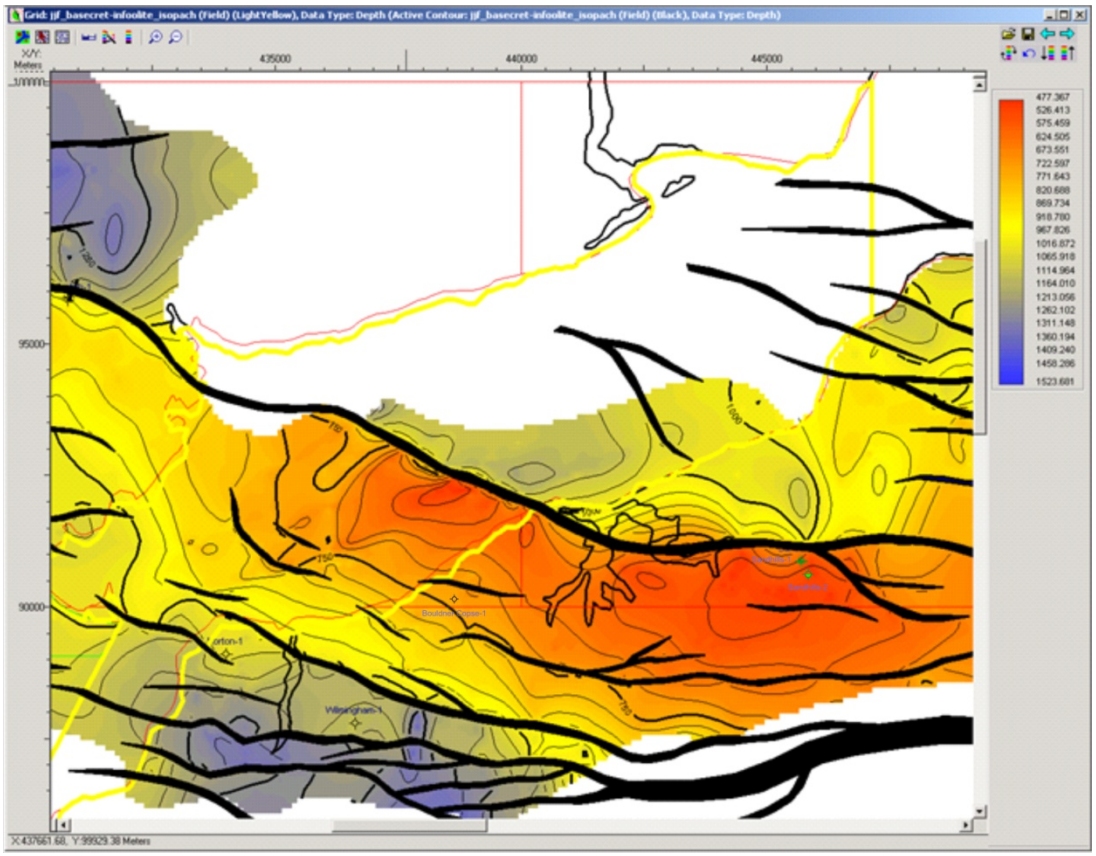

Figure 4: Inferior Oolite to "Base Cretaceous" Unconformity Isopach Map

The isochron for the "Base Cretaceous" unconformity to Rhaetic interval also shows how the Triassic high structure similarly extends from the Isle of Wight north-west into PEDL 151. On a regional basis, the Isle of Wight high has been a stable high feature for a very long time, probably since the Variscan (Hercynian) orogeny. Further, this feature was structurally higher than the Wytch Farm structure, and in fact the highest area regionally, at the time that oil was being generated and was migrating. The isochron from Rhaetic to "Base Cretaceous" unconformity (Figure 5) illustrates this point. Oil generation and migration are interpreted to have commenced to the south at or soon after the time of the "Base Cretaceous" unconformity so this map effectively shows the structural configuration of the Triassic section (including the Sherwood Sands) at that time.

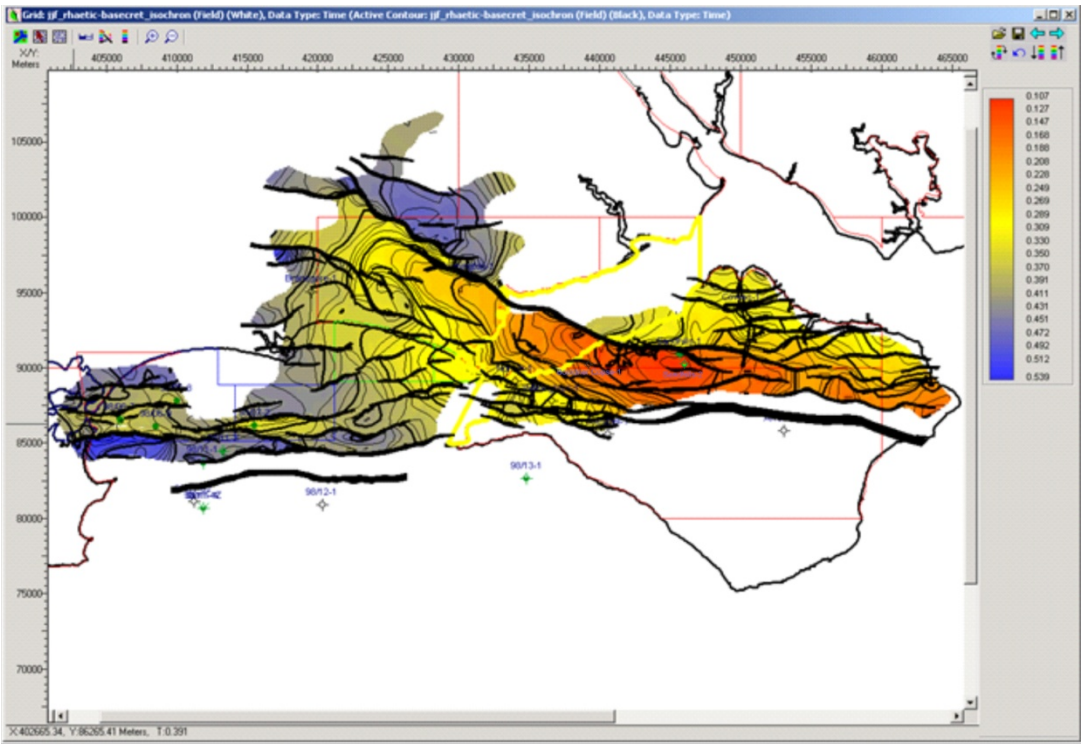

Figure 5: Rhaetic to "Base Cretaceous" Unconformity Interval Isochron Map

A Sherwood sandstone isopach map was generated by mapping a mid-Mercia event, interpreted to be an anhydrite layer, and a "Basement" event, variously the Permian or Devonian and the surface onto which the Sherwood was deposited. An isochron between these two horizons was generated and then the isochron of the mid-Mercia to top Sherwood time, taken from wells such as Wilmingham-1 and Norton-1, was subtracted from this to give a Sherwood isochron, itself converted to an isopach using a constant interval velocity (Figure 6). Although regional log correlation of the Mercia indicates that this Sherwood isopach is not absolutely correct in detail, it nevertheless provides a basis for an attempt at understanding the depositional distribution for the Sherwood sandstone. The Bouldnor Copse-1 well drilled in PEDL 089 on the Isle of Wight in 2005 encountered a well developed Sherwood sandstone interval but without any shows. The prospect is therefore not plumbed into the major source rock system responsible for the Wytch Farm accumulation with a migration route to this structure not being present.

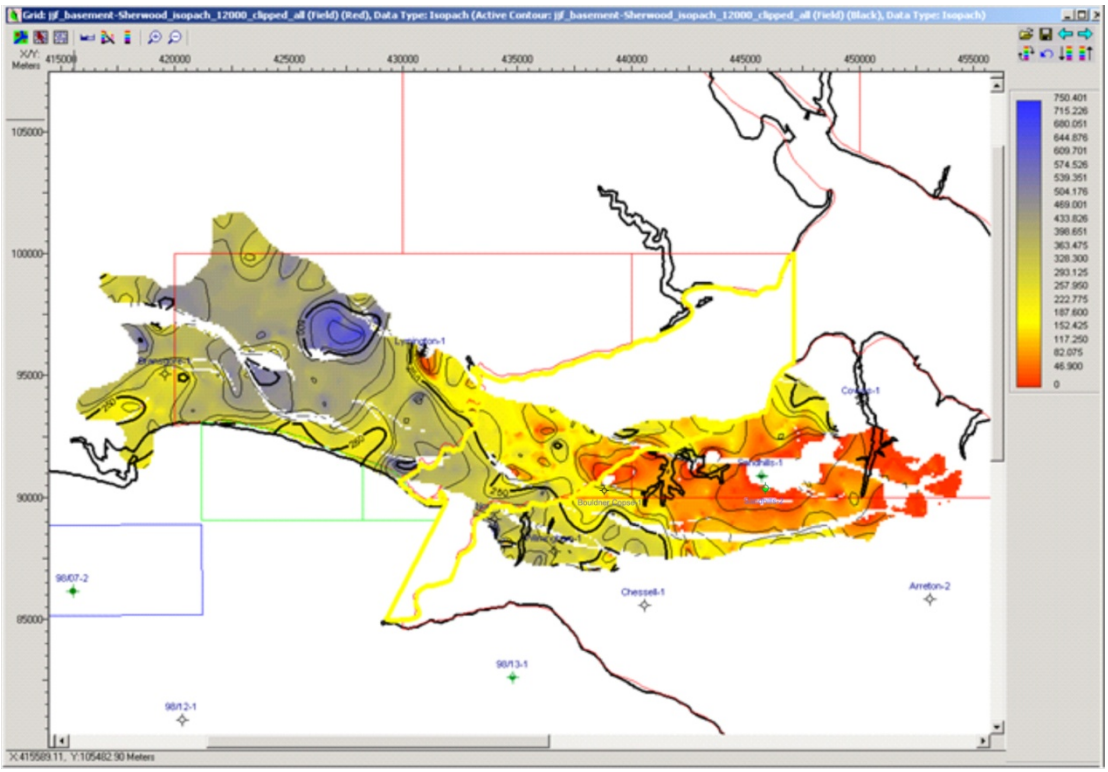

Figure 6: Sherwood Sandstone Isopach Map

An example of an interpreted seismic line over PEDL 151, line SW86-096 (Figure 7), illustrates the rugose nature of the “Basement” surface on which the Sherwood was deposited and the potential for areas of non-deposition as encountered at Lymington-1.

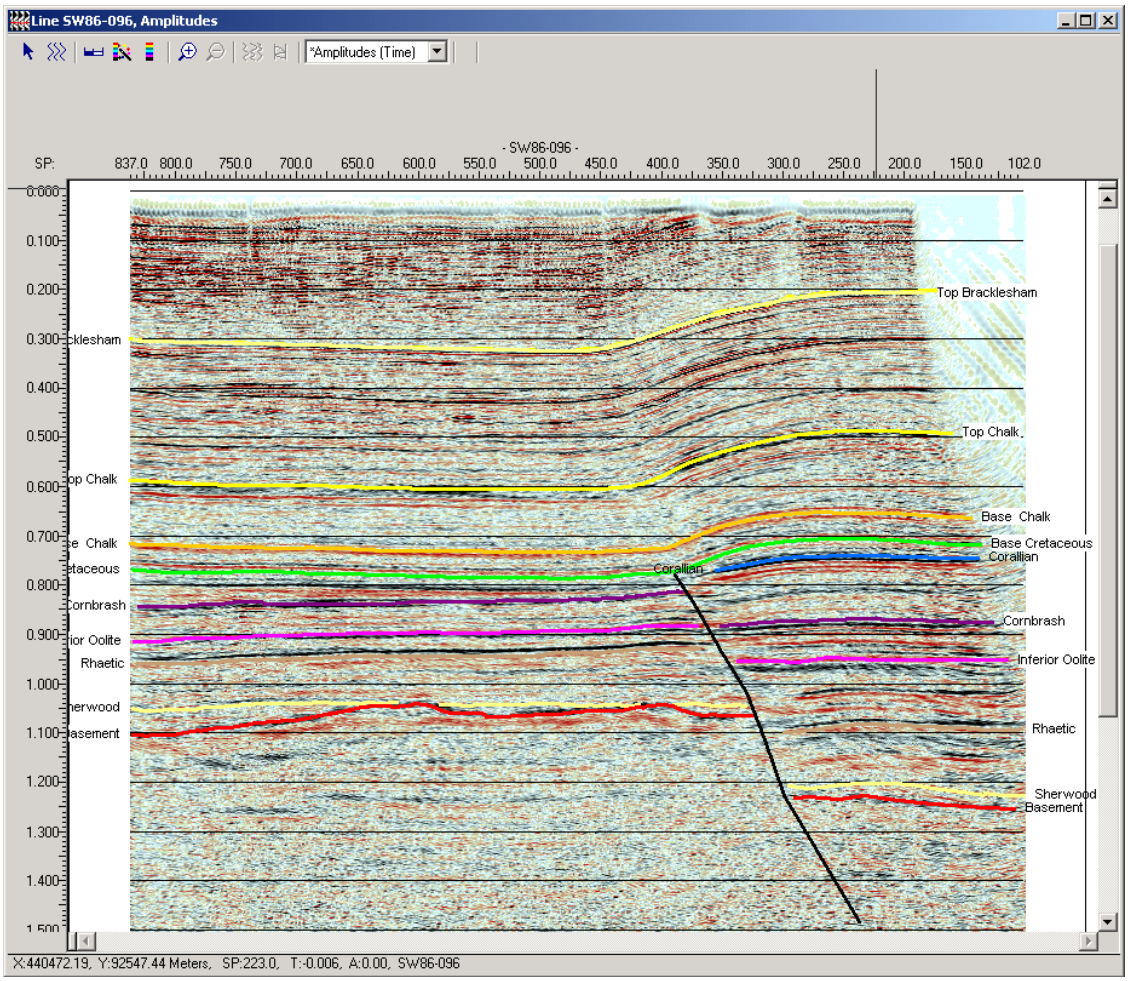

Figure 7: Seismic Line SW86-096

Depth maps representing present day structure were generated for the primary reservoir targets, the Great Oolite limestone and Sherwood sandstone. The closures on these maps demonstrate that the structures recognised at peak oil generation have been modified by later, Tertiary uplift and tilting to reduce the size of the potential areas of closure yet retained the potential for significant accumulations.

The following maps indicate the potential closure as mapped for the primary reservoir targets of the Great Oolite and Sherwood sandstone. The Inferior Oolite (Figure 8) is the closest reliable marker by which to define the Great Oolite structure, and the map at this level indicates a closure that was tested by the Sandhills-2, 2Z wells and the Bouldnor Copse-1 well, both found to be oil bearing in the Great Oolite but with heavily biodegraded oil.

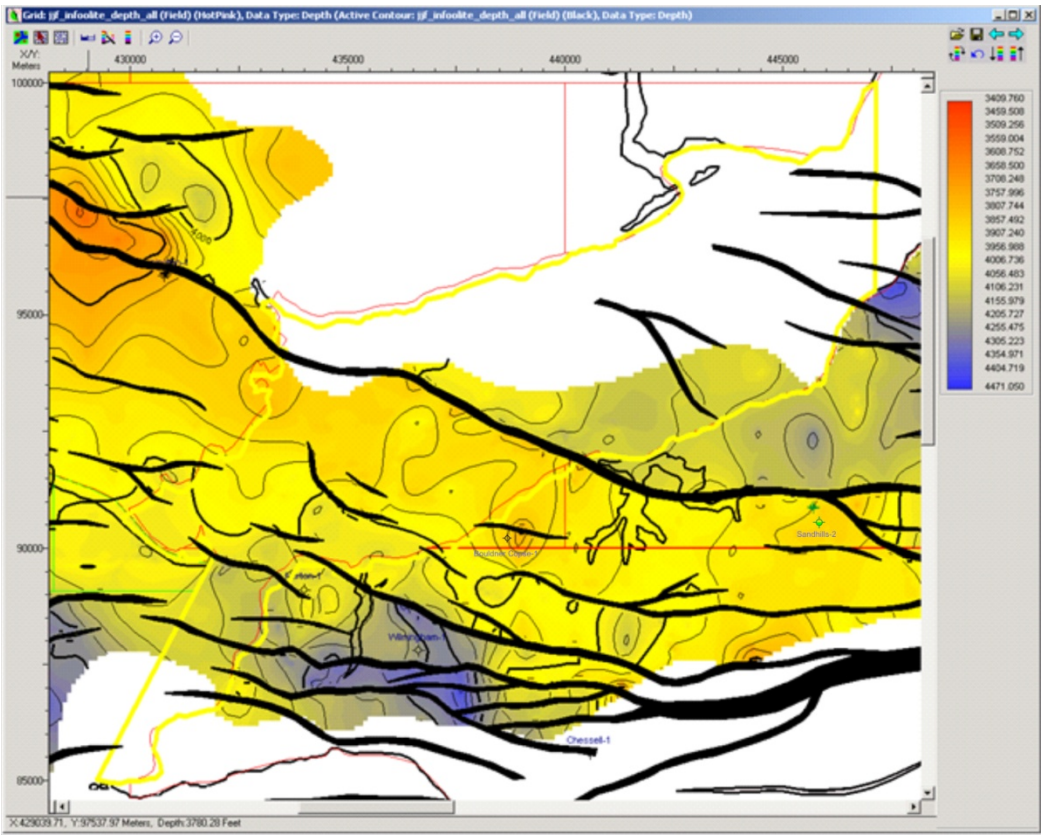

Figure 8: Top Inferior Oolite Depth Structure Map

The Rhaetic reflection is the closest reliable marker to the Sherwood sandstone and the map at this level (Figure 9) also indicates a closure that was tested by the Bouldnor Copse-1 exploration well but found to be dry with no shows.

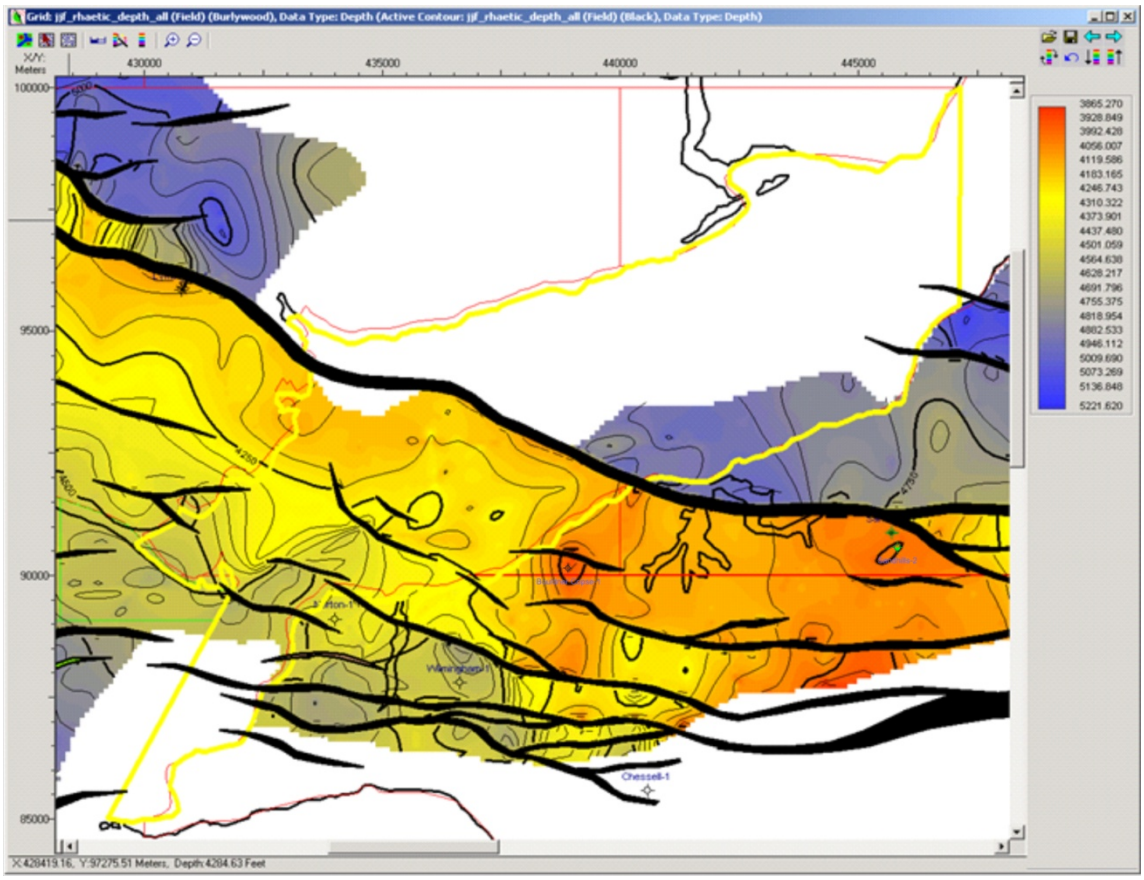

Figure 9: Top Rhaetic Depth Structure Map

Clearance

As operator for Licence PEDL 151, Northern confirms that DECC may publish this Relinquishment report, and all 3rd party ownership rights have been considered and appropriately cleared for publication purposes