

UK Onshore Licence PEDL 155 Relinquishment Report October 2014

Licence Details

Licence Number:	PEDL 155
Licence Round:	UK 12 th 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 Weald Limited ("Northern") (50.0%)
Partners:	Magellan Petroleum (UK) Limited (40.0%) Egdon Resources UK Limited (10.0%)
Work Programme:	Drill-or-Drop Work Programme; Part 1: Obtain 33 km of 2D seismic data, Part 2: Drill one well

Licence Synopsis

PEDL 155 is located in the southern part of the Weald Basin, onshore Southern England (Figure1), to the south and southwest of the Horndean and Singleton oil fields, respectively. At the time of application a prospect had been mapped that had structural similarities to the Horndean and Singleton fields.

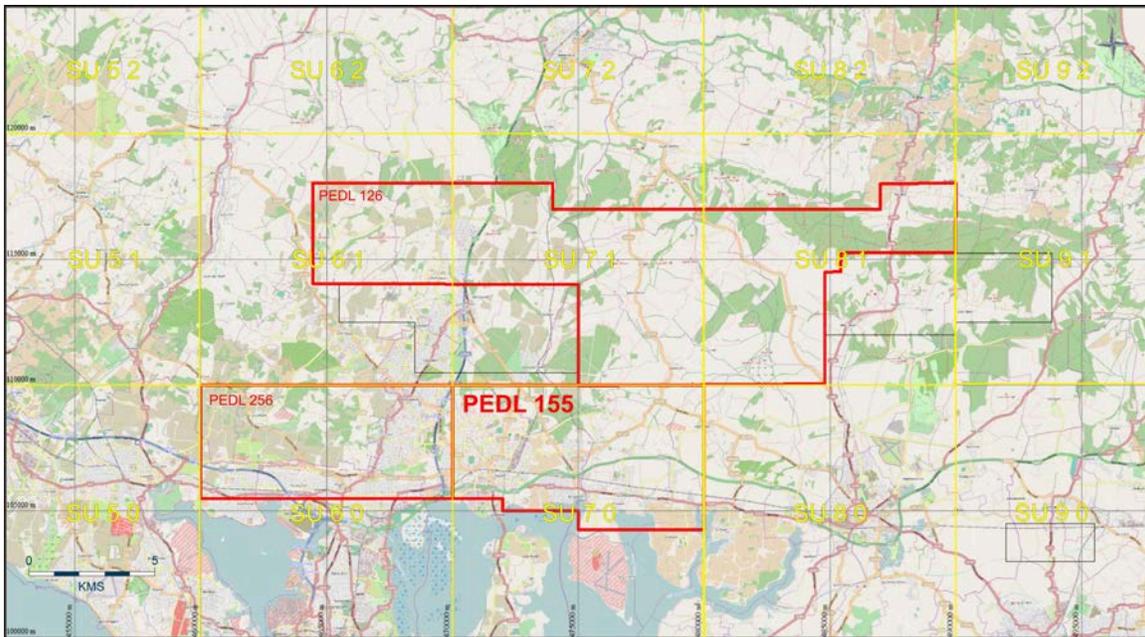


Figure 1: PEDL 155 Location Map

Following agreement from DECC in 2011, the Initial Term of PEDL 155 was extended to eleven years and the Second Term reduced to zero years. The licence was due for relinquishment in August 2015. Following the receipt of planning permission a

wellsite was constructed in the adjacent Licence, PEDL 256 from which the Havant prospect could be drilled, the prospect extending into PEDL 155. Opposition from the Environment Agency has prevented the PEDL 256 Group from getting the necessary approvals for drilling. Consequently the PEDL 155 Group decided to relinquish the License in its entirety.

Exploration Activities

The Group has not undertaken any new seismic acquisition on Licence PEDL 155 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). Data has also been acquired for all of the wells in and around the Licence that have been publicly released (primarily Horndean field).

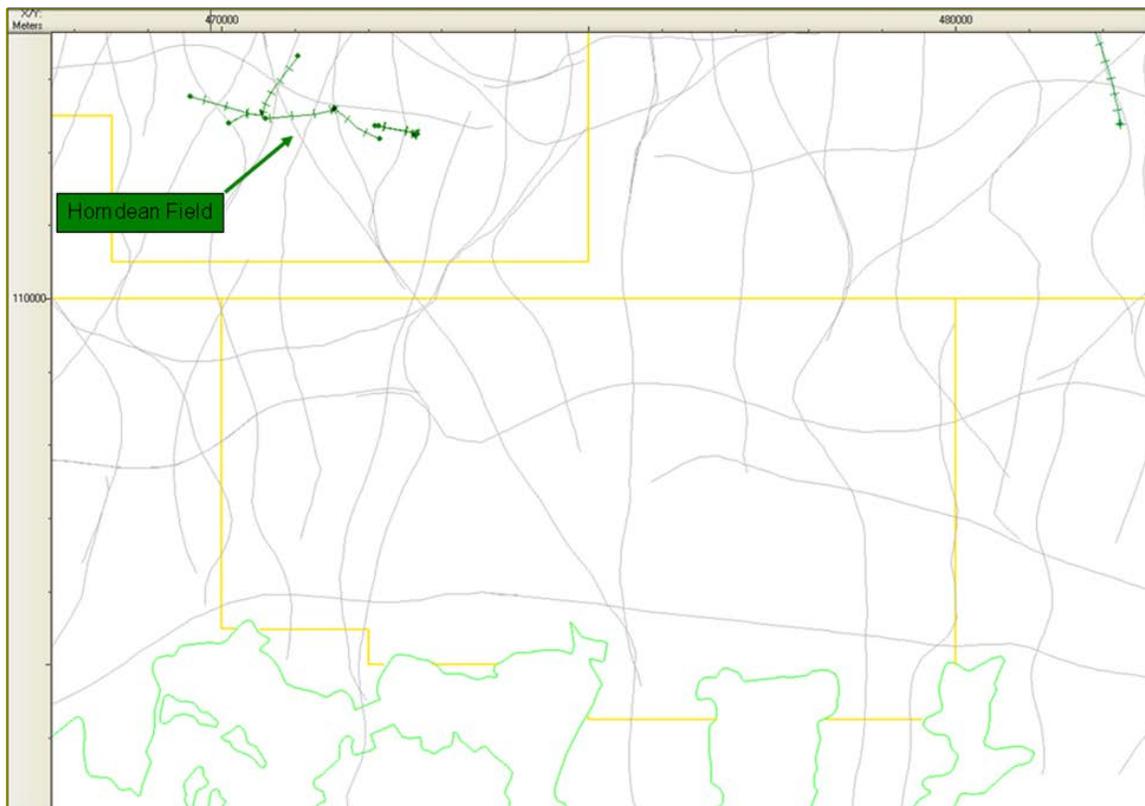


Figure 2: PEDL 155 Seismic and Well Database

In 2011, as part of a larger overall project including data over the adjoining licences PEDL 256 to the west and PEDL 126 and the Horndean Field to the north, the PEDL 155 Group reprocessed 59.97 km of existing 2D seismic data in order to generate a consistent dataset over the Licence (Figure 3). Copies of the final reprocessed lines have been supplied to the UK Onshore Geophysical Library (UKOGL).

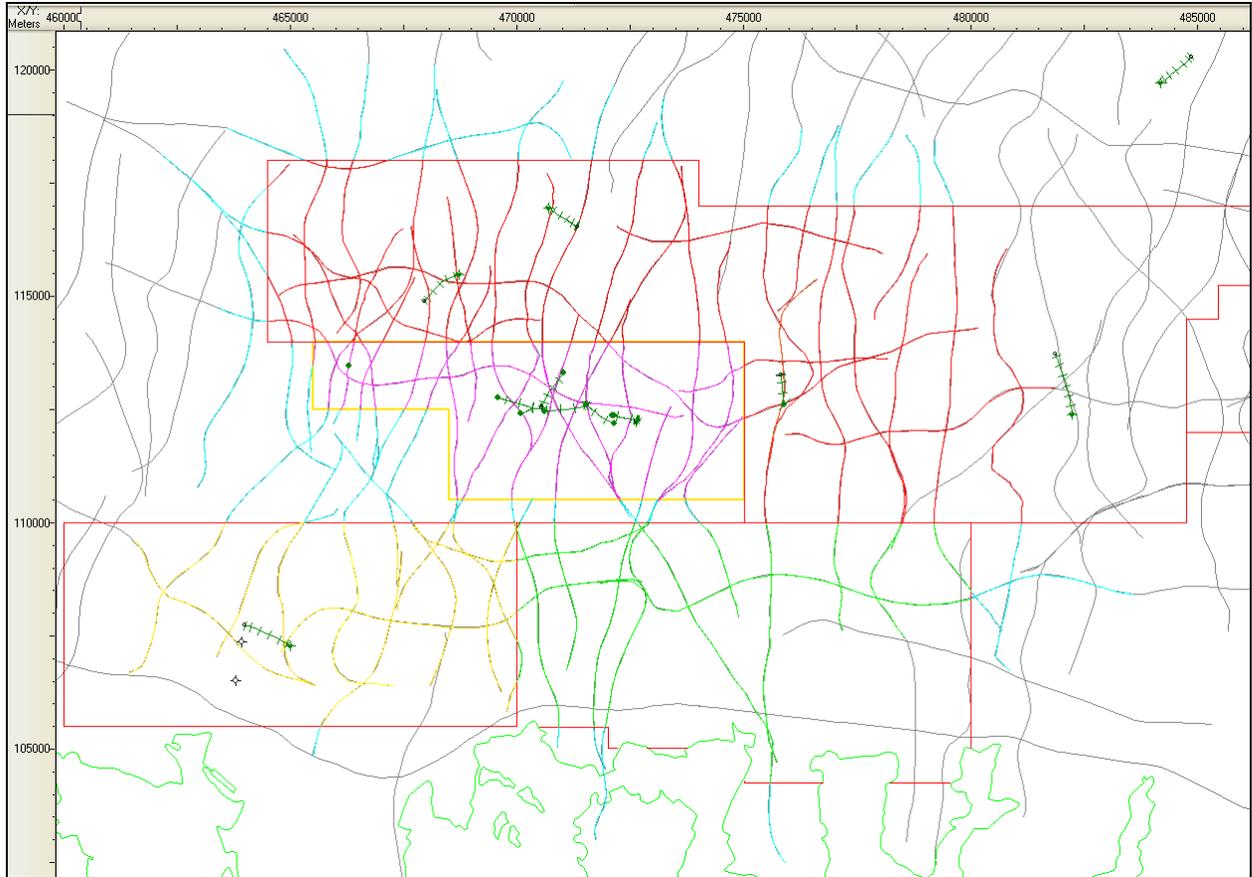


Figure 3: PEDL 155 2011 Seismic Reprocessing Project (green lines)

The reprocessed data show a marked improvement over the original versions of the seismic lines having benefited particularly from a consistent approach to calculating static corrections. Subsequent interpretation and mapping over and around PEDL 155 using the reprocessed data has allowed the Group to generate structure maps in which a greater degree of confidence can be placed than previously.

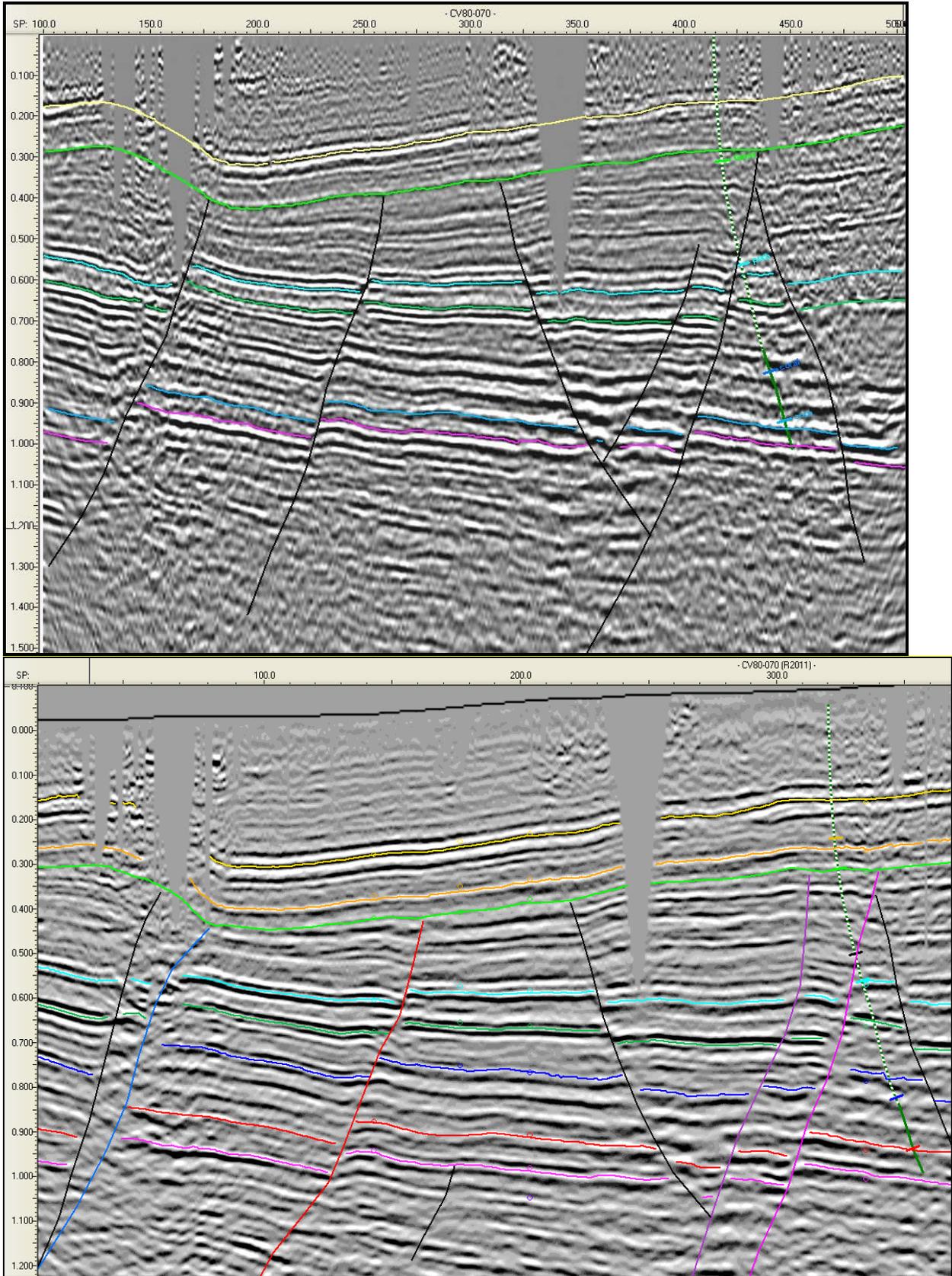


Figure 4 : PEDL 155, Seismic Line C80-070 Comparison

Prospectivity Analysis

The primary reservoir target at the time of the Licence's award was identified as being the Bathonian Great Oolite limestone series, the main productive reservoir in the southern and western parts of the Weald Basin (Storrington, Singleton, Lidsey, Horndean, Avington, Stockbridge, Goodworth, Humbly Grove/Herriard). Of particular interest with respect to PEDL 155, are the Horndean and Singleton oil fields which are located to the north of the Licence.

The principal source rocks in the Weald Basin are the Lower Jurassic Lias marine shales. Potential for oil generation also exists in Middle Jurassic Oxford Clay and the Upper Jurassic Kimmeridge Clay, the primary source of oil in the North Sea. The Lias shales are interpreted to have been buried sufficiently deeply to generate oil in the Weald Basin and migration is believed to have commenced during Lower Cretaceous times and to have continued until the area underwent significant inversion in response to Alpine tectonism during Miocene time when the source rocks were lifted out of the maturity window and oil/gas generation ceased. It is not clear whether the Oxford Clay has ever been buried deeply enough to become mature for hydrocarbon generation, although it is interpreted that the Kimmeridge Clay definitely has not. It is understood that all the oils produced in the Weald Basin have been geochemically typed to the Lias source rocks. Oil has migrated towards the southern edge of the Weald Basin from a mature generating kitchen in the centre of the Basin to the north, as evidenced by the oil accumulations to the north of the licence at the Horndean and Singleton oil fields, plus to the south the Lidsey oil field.

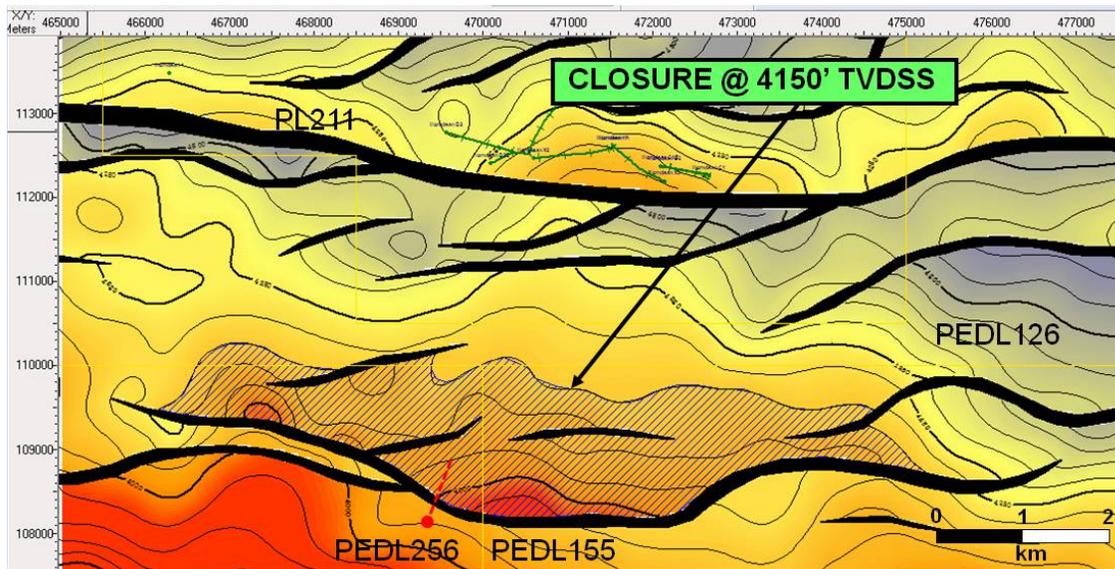
Structures which have been demonstrated to be effective hydrocarbon traps in the southern part of the Weald Basin were predominantly present as trapping mechanisms at the time of hydrocarbon generation and migration (Lower Cretaceous – Miocene). They generally take the form of tilted fault blocks bounded by a normal fault to the south with sufficient southward down-throw to have caused juxtaposition across the fault of reservoir rocks against an effective seal. Some structures with a younger element related to the Alpine inversion, which is interpreted to post-date the primary generation and migration of hydrocarbons, have also been proven to trap oil and/or gas (Storrington, Avington), although the actual provenance of the gas is not well understood.

Prospectivity Review

The PEDL 155 Group initially interpreted all of the existing 2D seismic data over and around the Licence and generated time and depth structure maps for the Top Cornbrash which gives a relatively consistent and continuous reflection across the area and is taken to define structure at Top Great Oolite level. The Base Gault reflection was also mapped, which is the deepest reflection that postdates (or equates) to the main Albo-Aptian Unconformity, which marks the end of Jurassic to Cretaceous tectonism in the Basin. Thus, by generating isochrons/isopachs between the Base Gault and deeper levels, the effects of Alpine inversion and uplift can be "stripped off" and a view taken as to the palaeo-structure at identified leads during the period of hydrocarbon generation and migration during the Mid-to-Upper Cretaceous and Early Tertiary.

The primary prospect identified by the Group at the time of application was confirmed as a result of this interpretation and mapping and named the Havant prospect. However a relatively high degrees of uncertainty was attached to the prospect as a result of the inconsistencies noted between seismic lines of various vintages with various sometimes significant (e.g. 50ms) static shifts not being uncommon. This led to the Group's decision to reprocess most of the data over the Licence during 2011 as part of a larger reprocessing project including adjacent licence PEDL 256 plus PEDL 126 and the Horndean field to the north.

Following the completion of the reprocessing project, the Group interpreted and mapped the now consistent and statically tied dataset and generated new structure maps for the Havant prospect, most notably at Top Cornbrash level where the fault pattern was interpreted to be somewhat different than previously mapped. The reprocessed data has resulted in the Havant prospect shifting up 100 feet with respect to the crest, structural relief reduced by 50 feet and the structure spilling to the east as opposed to the west with resultant impact to calculated rock volume in closure.



**Figure 5: PEDL 155 Top Cornbrash Depth Structure Map (2010),
C.I. 50'**

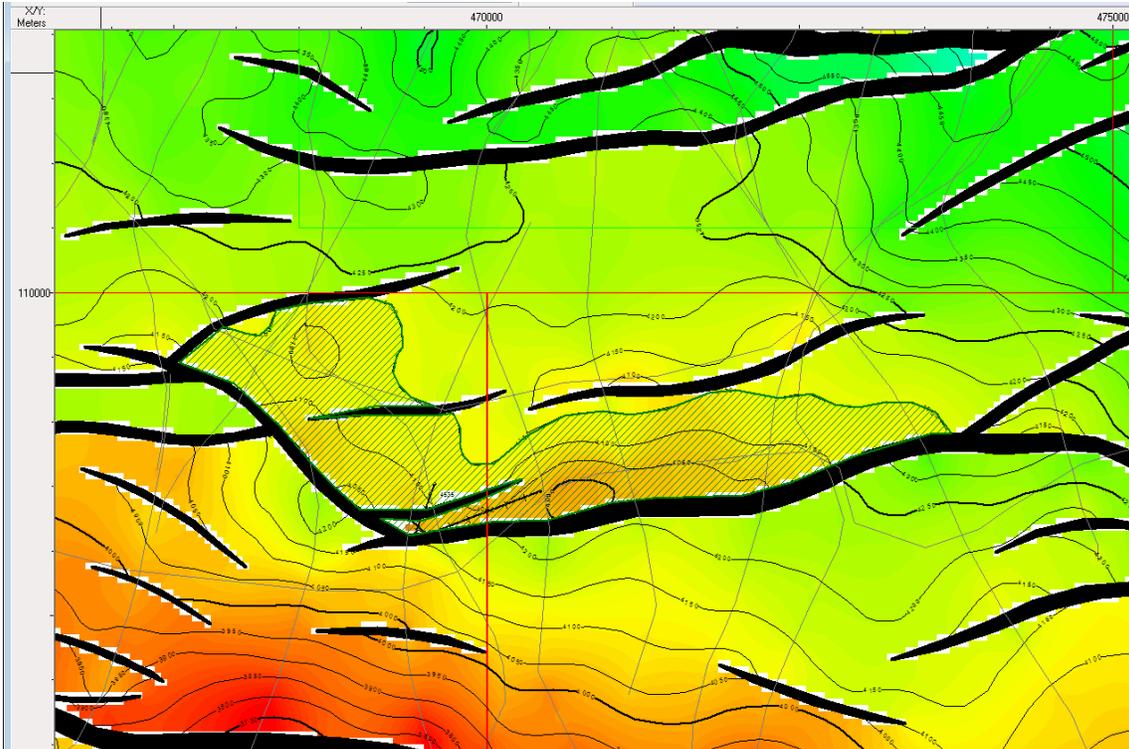


Figure 6: PEDL 155 Top Cornbrash Depth Structure Map (2011), C.I. 50'

The PEDL 155 Group has assessed the oil in place volumes and potential recoverable reserves for the Havant Prospect (PEDL 155 & PEDL 256) with the following results.

	P90	P50	P10	Mean
STOIIP	6.20	7.85	9.67	7.91
Recoverable	0.3	1.2	2.4	1.2

The PEDL 256 Group was progressing with approvals for the drilling of the Havant prospect but the requirement for a renewed planning consent, the previous having lapsed as the prospect was not drilled as planned some years earlier, resulted in the Environment Agency indicating they would not issue the required consents to operate as the drill site was in a newly designated SPZ1 zone, effectively preventing drilling even if a planning consent was obtained. The PEDL 155 Group therefore made the decision to relinquish the Licence.

Clearance

As operator for Licence PEDL 155, Northern confirms that DECC may publish this Relinquishment report, and all 3rd party ownership rights have been considered and appropriately cleared for publication purposes.