Relinquishment Report

for

Licence P.1856

Blocks 41/5, 41/10 & 42/1

January 2013
CONTENTS

1 - Header
2 - Synopsis
3 - Exploration Activities
   3.1 – Seismic Data
4 - Prospectivity Analysis
5 - Reserves Summary
6 – Maps and Figures
7 - Clearance

LIST OF FIGURES AND TABLES

Figure 1: Location map.
Figure 2: Seismic and key well database together with prospect inventory.
Figure 3: Cleveland Basin structure.
Figure 4: Generalised stratigraphy
Figure 5: Base Permian Sub-crop, illustrating source rocks and hydrocarbon occurrences
Figure 6: Lytham Prospect – Base Permian Unconformity depth structure
Figure 7: Lytham prospect – seismic Line (North – South)
Figure 8: Lytham prospect – seismic Line (East – West)
Figure 9: Lytham prospect – reprocessed seismic line 318 (North – South)
Figure 10: Lytham / Fairhaven prospects – schematic sections
Figure 11: Well 41/10a-2Z - Log analysis Hauptdolomite and Namurian sandstones
Figure 12: P.1856 prospect inventory - summary resource potential
1 - Header

Licence Number: P.1856
Licence Round: 26th Round
Awarded: 10th January 2011
Drill-or-drop: 10th January 2013
End of Initial Term: 9th January 2015
Licence Type: Promote
Block Number: 41/5, 41/10 & 42/1
Equity Holdings: Trap Oil Ltd: 100.00%
Gross Area: 715 km²
Water Depth: c. 250 ft

Work Programme Summary:

PART I
Promote Licence requirement
With reference to the obligations imposed by this Licence, the Licensee shall demonstrate to the satisfaction of the Minister:

(1) the financial capacity of the Licensee; and
(2) the competence of the following persons to organise and supervise any of the operations of searching for, boring for and getting Petroleum:
   (a). the Licensee, where the Licensee is one person; or
   (b). any operator or operators exercising functions in accordance with model clause 20, where the Licensee is two or more persons.

PART II
Drill-or-drop commitment
The Licensee shall either:
   (a)· drill one well to 1980m or to the Carboniferous, or
   (b)· elect to allow the licence to automatically cease and determine pursuant to Clause 3.
2 - Synopsis

Licence P.1856, comprising blocks 41/5, 41/10 and 42/1, was awarded as a Promote Licence in the 26th UKCS Licensing Round to Trap Oil Ltd, (operator, 75%), and GeoPartners Ltd, (25%), effective 10th January 2011. Trap Oil subsequently acquired GeoPartners working interest.

The blocks are located some 110 km east from Teesside, on the north-western margin of the Southern Gas Basin and to the north-west of the Breagh gas field, in a water depth of c. 250ft, (Figure 1). The main prospect in the licence, Lytham, was identified principally utilizing the Marathon 3-D data set, acquired by Geco Prakla in 1993. Subsidiary prospectivity was defined utilizing the available 2D seismic, (Figure 2). The Lytham prospect is a large north-south oriented dip-closed structure mapped at the Zechstein (Hauptdolomite) and Carboniferous (Namurian) levels. The structure was originally tested by well 41/10a-2z in 2007. The well encountered c. 107ft gross pay (gas) in the Hauptdolomite and a further c. 60ft gross pay (gas) in the Namurian and represents a ‘missed pay’ opportunity. A number of other prospects are identified which provide incremental exploration potential.

TrapOil reprocessed the Marathon (1993) 3D survey in 2012 with Geotrace, (PreSDM), and attempted to secure a farm-in partner to share in the costs of drilling an appraisal well on Lytham to validate the reservoir models and prove up a commercial volume of gas. Failure to secure a partner led to the decision to relinquish the Promote licence on the second anniversary.
3 - Exploration Activities:

3.1 - Seismic Data
Initial aspirations on the licence were targeted towards acquiring new 3D seismic data. Challenges associated with cost and opportunity led to a change in focus, coupled with the fact that efforts to optimise mapping of exploration targets on the licence was significantly compromised by poor seismic data quality of the legacy Marathon 3D data. These factors led to a decision to reprocess. The primary technical objective of this reprocessing was to improve the imaging and continuity of the Carboniferous section below the Base Permian Unconformity (BPU), as well as of the Lower Zechstein Group prospective carbonate sections.

Trapoil tendered to reprocess the Marathon (1993) 3D seismic survey, comprising c. 220 sq. km. of data. Due to time constraints imposed by the Promote licence, the project was designed to achieve a pre-stack depth migration volume, (PSDM), but also to include a PreSTM migration as a QC volume of the pre-processing and a preliminary ‘interpretation volume’. The contract was awarded to Geotrace.
4 - Prospectivity Analysis

Blocks 41/5, 41/10 and 42/1 are located on the northern flank of the Southern Gas Basin, some 110 km east from Teesside, where water depths are approximately 250ft.

Geologically the blocks are located on the southern edge of the Mid North Sea High, which defines the northern extent of the Cleveland Basin. This Carboniferous aged depocentre runs from the early Palaeozoic Askrigg Block of the Pennines, through North Yorkshire and into Quads 41 and 42. The southern edge of the depocentre is an inverted extension of the Sole Pit Trough, known onshore as the Flamborough Head Fault Zone, (Figure 3).

The generalised stratigraphy within the licence area, (Figure 4), can be summarised as a thin post-Miocene cover of 100 to 500ft overlying remnant sections of late Cretaceous Chalk, early Cretaceous sands and shale, early Jurassic shale and Triassic shale with thin sands. Underlying the Triassic is the Upper Permian Zechstein Group sequences of carbonates and evaporites. There are five main depositional cycles all of which start with a full or partial marine transgression resulting in carbonate sedimentation, followed by restricted circulation and the deposition of anhydrites and in some cases sulphates. The lower units (Z2 – Hauptdolomite carbonates and Z3 – Plattendolomite carbonates) form the primary Zechstein reservoir targets in the licence area.

The basal Permian transgressive lag (Rotliegend Group clastics) is absent in the licence area and the Carboniferous sequences sub-crop the Base Permian Unconformity. Underlying the Zechstein in northern Quads 41 and 42 is either the Westphalian A/B Coal Measures in the Variscan synclines or the Namurian sequences, located in the core of the inversion axes, which contain the primary target reservoir sand units at Lytham, (Figure 5).

Lytham is a four-way dip closure, mapped at Top Hauptdolomite and Top Carboniferous levels and developed over a Variscan anticline. The same structural morphology is exhibited at both levels. The northern end of the Prospect is cut by a series of NW-SE trending faults, (which may be associated with Tertiary dyke complexes), and it is
possible that one or other of these faults may form the northern closing element to the trap, (Figure 6).

An illustration of the legacy seismic data is included to highlight the strong residual multiple problem that affects imaging within the Carboniferous interval, (Figures 7 & 8) as well as an example of the reprocessed data, (Figure 9). A geoseismic cartoon based on these lines also illustrates the structural context of the blocks as well as the geological sequences, (Figure 10).

The main reservoir at Lytham is formed by the Hauptdolomite carbonates while sandstones of Namurian age form a secondary target. Porosity and permeability within the dolomite is strongly linked to depositional facies and grain size, with higher-energy, coarser grained oolitic and pisolithic grainstones developed on the margins and platforms to the basin having excellent porosity (20%) and slope and basinal mud prone facies being of lesser quality with porosity of 0-12%. Well 41/10a-2z encountered mixed platform and basinal facies with net pay calculated at between 57ft and 107ft, (dependant on cut-offs applied), and gas saturations between 50-70%, (Figure 11).

The secondary reservoir is formed by sandstones of Namurian age. Such sandstones were present in both wells 41/5-1 (wet) and 41/10a-2z (poor quality but gas saturated). Well 41/5-1 contained a single sand unit at the base Permian unconformity with a thickness of 16ft and porosity of 12-16%, albeit wet and drilled outside of structural closure. In well 41/10a-2z, the section contained three sandstones within a shale / sandstone inter-bedded section, of poor quality, (average porosity c. 8%), but gas saturated, (Figure 11). The regional top seal to the Hauptdolomite is the Stassfurt Halite while the Namurian section is sealed by the Weera Anhydrite. Both formations represent high quality seals.

The crest of the Hauptdolomite trap lies at a depth of c. 5,900ft TVDSS with fault controlled closure down to c. 6,300ft TVDSS. The secondary Carboniferous target has a crest at a depth of c. 6,100ft TVDSS with fault controlled closure down to c. 6,500ft
TVDSS. Principal risk relates to the development and effectiveness of the Hauptdolomite and Carboniferous reservoirs within structural closure.
5 - Reserves Summary

A tabulation of the summary resource potential for the principal prospect, (Lytham), is detailed below. A summary of the licence inventory is also provided, (Figure 12).

Principal (appraisal) risks comprise reservoir development and quality; COS – Zechstein Hauptdolomite (75%) and Carboniferous (55%).

<table>
<thead>
<tr>
<th>Case</th>
<th>GIIP (Bcf)</th>
<th>Reserve (MMbbl)</th>
<th>Reserve (bcf)</th>
<th>Reserve (MMboe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P90</td>
<td>241.0</td>
<td>0.0</td>
<td>129.0</td>
<td>21.5</td>
</tr>
<tr>
<td>P50</td>
<td>392.0</td>
<td>0.0</td>
<td>210.0</td>
<td>35.0</td>
</tr>
<tr>
<td>P10</td>
<td>625.0</td>
<td>0.0</td>
<td>338.0</td>
<td>56.3</td>
</tr>
</tbody>
</table>

In the success case, an independent development solution would be required.
Figure 1: Location map
Figure 2: Seismic and key well database together with prospect inventory.
Figure 3: Cleveland Basin structure.
Figure 4: Generalised stratigraphy.
Figure 5: Base Permian Sub-crop, illustrating source rocks and hydrocarbon occurrences.
Figure 6: Lytham Prospect – Base Permian Unconformity depth structure

Area v Depth
Spill points:
P90 (6350ftSS) 
*Dip closure*
P50 (6425ftSS)
P10 (6500ftSS) 
*Fault & dip*
Figure 7: Lytham prospect – seismic Line (North – South)
Figure 8: Lytham prospect – seismic Line (East – West)
Figure 9: Lytham prospect – reprocessed seismic line 318 (North – South)
Figure 10: Lytham / Fairhaven prospects – schematic sections
<table>
<thead>
<tr>
<th>Reference (FT)</th>
<th>56' pay</th>
<th>107' column</th>
<th>50-70% (60%) Sg</th>
<th>c. 7% Por</th>
<th>c. 8% av. Por</th>
<th>c. 35% Sg</th>
</tr>
</thead>
<tbody>
<tr>
<td>6175</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6225</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6275</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6300</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6325</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6350</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6375</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6425</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6450</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6475</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6525</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6550</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6575</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6600</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6625</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6650</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6675</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Cut-offs:** Phi > 6%; Sw < 80%

**Figure 11:** Well 41/10a-2Z - Log analysis Hauptdolomite and Namurian sandstones
<table>
<thead>
<tr>
<th>Licence, Block</th>
<th>Share</th>
<th>In-Place Volumes (GIIP or STOIIP)</th>
<th>Gross Prospective Resource (bcf)</th>
<th>Chance of Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.1856, Blocks 41/5, 10 &amp; 42/1</td>
<td></td>
<td>Low</td>
<td>Best</td>
<td>High</td>
</tr>
<tr>
<td>Lytham (Zech-Haupt)</td>
<td>100%</td>
<td>90</td>
<td>148</td>
<td>232</td>
</tr>
<tr>
<td>Lytham (Carboniferous)</td>
<td>100%</td>
<td>151</td>
<td>244</td>
<td>393</td>
</tr>
<tr>
<td>Fairhaven</td>
<td>95%</td>
<td>24</td>
<td>35</td>
<td>50</td>
</tr>
<tr>
<td>St Annes</td>
<td>100%</td>
<td>26</td>
<td>38</td>
<td>54</td>
</tr>
</tbody>
</table>

Figure 12: P.1856 prospect inventory - summary resource potential
7 – Clearance

Trapoil confirms that DECC is clear to publish this relinquishment report.