1. Header

Licence: P.357
Round: 07th
Licence Type: Traditional
Block: 22/19a
Equity: Talisman Energy (UK) Limited - 51.83% (Operator)
JX Nippon Exploration and production (UK) Ltd - 38.17%
Noble Energy (Europe) Limited - 10.00%

Work Programme: There are no outstanding work commitments for this Block.

Figure 1: Location map of licence P.357, Block 22/19a
2. Synopsis

Figure 2: P.357, Block 22/19a
2.1 Licence History

The 22/19 block (Licence P114) was first awarded to Ranger Oil (UK) Ltd in the 3rd licensing round in 1970. The licence was totally relinquished in 1976.

North Sea Cities Services Pet was awarded the 22/19 block (renamed Licence P357) in 1980 in the 7th licensing round, transferring operatorship to Occidental Pet (Caledonia) Ltd in 1984. The Fiddich discovery well 22/19-1 was drilled in 1984 finding gas and condensate in the Triassic Skagerrak formation with a small oil column in the Palaeocene Forties formation.

In 1986, Occidental Pet (Caledonia) Ltd partly relinquished 22/19, keeping a smaller newly named 22/19a (P357) licence. Occidental Pet (Caledonia) Ltd was purchased by E E Caledonia Ltd in 1991, who then went through a number of company name changes, Elf Enterprise Caledonia Ltd, Elf Caledonia Ltd through to Elf Exploration UK plc as operator, and partly relinquished the block in 1997. Elf Exploration UK plc, continued to operate a smaller 22/19a (P357) until 2001, when Amoco (Fiddich) Limited assumed operatorship having been the majority shareholder on the block from 1996.


A draft Field Development Plan was submitted in 2007, and the block was partially relinquished outside the proposed field area.

The proposed field development strategy for the Fiddich field was via two subsea wells targeting the main part of field and the Eastern fault block tied back to the ETAP (Eastern Trough Area Project) Central Processing Facility platform. Further field development potential was seen in Fiddich South.

In December 2011, Talisman Energy (U.K.) Limited (51.83%) as operator, JX Nippon Exploration & Production (U.K.) Ltd (38.17%) and Noble Energy (Europe) Limited (10%) concluded that capacity and commercial issues precluded a successful development outcome for Fiddich, and surrendered the licence.

3. Exploration Activities

No new wells were drilled by Talisman within Block 22/19a during their period of operatorship. The only well drilled within the licenced block is:

- 22/19-1 Occidental 1984 Gas/condensate

3.1 Seismic data

The seismic dataset used for interpretation of the discovery covers 120km2 and is a subset of the MC3D Q22-93 and MC3D Q22-00 speculative surveys acquired in 1993 and 2000 respectively by PGS. The data was reprocessed using Pre-stack Time Migration by PGS in 2004. Near, Full and Far offset stacks were output as well as AVO Intercept, Gradient and ‘Envelope’ stacks. Relative Acoustic Impedance (RAI), Coherency, Dip and Azimuth data volumes were also produced and used in the structural interpretation along with the amplitude volumes.
4. Fiddich discovery summary

Fiddich was discovered in 1984 by well 22/19-1 drilled by Occidental. The structure is two tilted fault blocks (Fiddich Main and Fiddich East). 22/19-1 was drilled into the Fiddich Main structure and TD’d at 12736 ft MDRKB (12650 ft TVDSS). Upon DST, the well tested at 15.07 mmscfd and 1519 bpd of condensate from the Triassic Skagerrak formation. A total of four DSTs were taken in 22/19-1. DST 1A was performed below the interpreted Free Water Level (FWL) and produced 100% formation water. DST 2 was performed across the lower transition zone and produced high water rates, together with gas and condensate. DSTs 3 and 4 tested two intervals above the transition zone and produced dry gas and condensate. Extensive core coverage is also available across the Triassic reservoir interval and evaluation was supported by wireline log coverage. No further appraisal drilling on Fiddich has been carried out.

The 22/19-1 well also penetrated a limited oil column at the top of the Paleocene Forties Sandstone, within a low relief closure which lies over the crest of Fiddich Main. This accumulation was not part of the proposed Fiddich development.

The Fiddich reservoir is Triassic Skagerrak formation, a fluvio-deltaic reservoir. The near top Skagerrak Formation and near top Fiddich Shale member have been mapped on seismic with a good degree of confidence. Fiddich East is a more complex structure than Fiddich Main and lacks previous well penetrations but the faulted structures are well defined by seismic and seismic flat spots give confidence for a GWC similar to that in Fiddich Main.

5. Reserves Summary

A range of hydrocarbon initially in place volumes were generated following the construction of a static model which was then incorporated into an Eclipse model. The base case GIIP for the Fiddich field is 185.5 bscf with reserves of 84.5 bscf assuming 46% recovery factor.

<table>
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<th>P90</th>
<th>P50</th>
<th>P10</th>
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<tbody>
<tr>
<td>Porosity</td>
<td>16.40%</td>
<td>17.70%</td>
<td>18.40%</td>
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<tr>
<td>Net:Gross Ratio</td>
<td>76.80%</td>
<td>86%</td>
<td>87%</td>
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<tr>
<td>Horizontal Permeability (mD)</td>
<td>1.6</td>
<td>2.24</td>
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<td>kv:kh</td>
<td>0.002552</td>
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<td>Pore Volume Multiplier</td>
<td>1.16</td>
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Table 5.1 Reservoir parameters used in reserve calculations (FDP Draft 2007)

<table>
<thead>
<tr>
<th></th>
<th>Main</th>
<th>East</th>
<th>Total</th>
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<tbody>
<tr>
<td>Simulator GIIP (Bscf)</td>
<td>110.3</td>
<td>75.2</td>
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<tr>
<td>Gas Reserves (Bscf)</td>
<td>55.6</td>
<td>29.1</td>
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<tr>
<td>Recovery Factor</td>
<td>50%</td>
<td>39%</td>
<td>46%</td>
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<tr>
<td>Oil Reserves (mmstb)</td>
<td>3.51</td>
<td>1.88</td>
<td>5.39</td>
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<tr>
<td>Total Reserves (mmboe)</td>
<td>12.78</td>
<td>6.73</td>
<td>19.51</td>
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Table 5.2 Summary of Fiddich in place and recoverable volumes (FDP Draft 2007)
Figure 3 shows the Top Skagerrak formation structure map over the Fiddich accumulations Fiddich Main, Fiddich East and Fiddich South.

![Figure 3: Fiddich field - Top Skagerrak Formation depth map](image-url)
Figure 4: Seismic Depth Sections – Fiddich Main and East

5. Clearance

Talisman Energy (UK) Limited confirms that permission has been sought and gained from PGS to publish the seismic data and interpretation figures contained in this report.