Relinquishment Report

Licence: P.1192
Blocks: 213/25b & 25c
UKCS

Submitted to the Oil & Gas Authority
May 2017
<table>
<thead>
<tr>
<th></th>
<th>Licence Information</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Licence Synopsis</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Work Programme Summary</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>Database</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>Prospectivity Update</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>Conclusions</td>
<td>13</td>
</tr>
</tbody>
</table>
1 Licence Information

Licence Number: P1192  
Licence Round: 22nd Licence Round, 2004  
Licence Type: Traditional Licence  
Block Number: 213/20b & 25c  
Relinquished: 8th November 2016

Nexen Petroleum U.K confirms OGA is free to publish the Report and all third party ownership rights have been considered and appropriately cleared for publication purposes.

The license location is shown in Figure 1. The block highlighted in yellow is the remaining area following a previous license area relinquishment at the end of the first term.

![North Uist Location Map](image-url)

Figure 1. North Uist Location Map
2 Licence Synopsis

The P.1192 licence was awarded in 2004 as part of the 22nd UKCS Offshore Seaward licensing round in the partnership group: Shell 30%, BP 30%, Chevron 30%, Faroe Petroleum 10%.

Nexen farmed into licence P.1192 licence in 2008, the resultant equity split was as follows BP (OP) 47.5%, Nexen 35%, Cieco 6.25%, Faroe Petroleum 6.25%, Idemitsu 5%

A number of licence extensions have occurred throughout the initial term of the licence, extending the initial phase from 4 years to 9 years in total.

The drilling of well 213/25c-1V spudded in March 2012 and was completed in Jan 2013. In December 2013 a deed of assignment to the new partnership group was signed as was a transfer of operatorship from BP to Nexen.

Nexen Petroleum U.K. became operator in 2014, BP and Idemitsu elected to withdraw from the licence, the remaining partners acquired the following holdings Nexen 73.68%, Cieco 13.16% and Faroe Petroleum 13.16%.

Cieco and Faroe Petroleum subsequently withdrew from the licence resulting in Nexen as sole licensee to P.1192.

November 2016: Nexen 100%
Following additional Post well analysis, integration of data with regional studies Nexen has decided to relinquish the P1192 licence.
3 Work Programme Summary

Firm Commitments - Initial Term

- Within one year of the beginning of the Initial Term, the Licensee shall reprocess 286km² of 3D seismic data.
- Within two years of the beginning of the Initial Term, the Licensee shall carry out a structural restoration programme.

Drill-or-drop - Initial Term
The Licensee shall make a decision before the end of the Initial Term to either drill one well or relinquish the licence. In the event the Licensee decides to drill a well, then one well will be drilled to a depth of 3600m or to the Base Tertiary, whichever is the shallower. In the event that the Licensee does not decide to drill a well the licence shall be relinquished.

Since beginning the initial term of the P1192 licence in 2004 numerous vintages of seismic data have been reprocessed over the licence area greater than the 286km² area original commitment Figure 2. A structural restoration study was completed for the partner group by Needham Geoscience as a result completing the initial work programme. This regional study included 2D lines that show the structural evolution of North Uist and the Fawn areas.

Following the completion of the initial work programme the decision to commit to drilling the North Uist prospect was made. The 213/25c-1V well was spudded on the 25/03/2012 and reached TD on the 13/01/2013. Upon completion of the well the licence moved into the second licence phase.

As part of the drilling programme various data were collected to evaluate the North Uist discovery. These data have been integrated into regional and local subsurface studies. These included:

- Validation of the collected VSP data and further testing
- Additional biostratigraphic analysis of 213/25c-1V
- OBMI (Oil-Base Microimager Tool) used to log the structural and sedimentological features of 213/25c-1V
- Petrographical and heavy mineral analysis of 213/25c-1V, including zircon age dating of the reservoir
- Well data were incorporated into a regional pressure analysis study, a regional source rock and a hydrocarbon generation study
- The South Uist well information has been used to improve the regional geological understanding in the area

From 2014-2016 the P1192 partner group completed further subsurface work to integrate data from the well into regional projects. Part of this new work programme included a JSA (Joint Service Agreement) signed between Nexen and Total in 2014. Well data were shared between the partner group and Total.
4 Database

Seismic Data
As part of the initial work programme 286km\(^2\) of 3D seismic data was reprocessed prior to drilling. The available seismic data over the North Uist area as of early 2017 is shown in Figure 2. As part of the licence and Total JSA partnership higher quality seismic data is now present across the P1192 licence area. This includes the PGS Megamerge-plus Phase 2 and the Total/WesternGeco PreSDM Phase 1 seismic volumes.

![Figure 2. North Uist Available 3D Seismic Outline](image)

Well Data
Within the P1192 licence acreage only the 213/25c-1V well is present, Figure 1. The key well log data collected from this well included:

- GR, Resistivity (S/M/D) from Seabed to TD
- Neutron, Density, Caliper from Mid-Eocene to TD
- Sonic from K32.1 to approximately TD

The well did not reach basement at TD.
A summary of the full logging data collected is shown in Figure 3.
The closest offset well to the P1192 licence area is the 214/21a-2 well to the South West in block 214/21. This well was drilled by Shell in 2009 on the P799 licence. The original target was the Cretaceous. No Cretaceous sands of reservoir quality were found, however water-wet sand was found within 2 intervals of the overlying Palaeocene.
RUN WIRELINE LOGS @ 15665ft MD
Run 1A: AIT-PEX-HNGS-ACTS (GR to seabed)
Run 1B: UBI-OBMx2-PPC-SS-PPC-ACTS
Run 1C: USIT-Sonic Scanner-CCL
Run 1D: CMR-HNGS-ACTS
Run 1E: XPT-GR
Performed wiper trip & WOW from 25th Jan 2013 to 16th Feb 2013

Resumed wireline logging 7th Mar 2013 (following BOP repairs)
Run 1F: MDT-GR (2 samples taken)
Run 1G: MDT-GR (1 sample taken)
Wiper trip
Run 1H: MDT-GR (no samples)
Run 1I: MSCT-GR (50 cores attempted, 45 recovered)
Run 1J: VSP-GR

Figure 3. Wireline data collected
5 Prospectivity Update

Prospectivity Update

The 213/25c-1V well was drilled to test the North Uist Prospect as a primary target and the Cardhu prospect as a secondary target. The well was spudded on the 25/03/2012 using the Stena Carron drill ship, owned and operated by Stena Drilling. The total depth of the well was 15,521ft (4730m) TVDSS, satisfying the licence drilling commitments. The well reached TD on the 13/01/2013. The well encountered operational challenges including 5 sidetracks & high well bore temperatures.

North Uist was an oil prospect with a reservoir of Jurassic and/or Devono-Carboniferous target below the Base Cretaceous Unconformity (BCU). The secondary target, Cardhu prospect was Palaeocene in age. A contingent third target was planned to test the deeper upside potential of North Uist. The well was abandoned by the drill ship after reservoir evaluation was completed.

North Uist Prospect
A geological summary of North Uist can be seen in Figure 4.

Prospect Summary - Post Drill
Source - Bathonian - U. Toarcian mature oil prone source rocks were encountered as were Cretaceous aged gas prone source rocks.
Reservoir - Moderate to good porosity - Negligible to poor permeability.
Seal - Low effective stress due to high overpressure could have caused capillary leakage of early oil, this could have caused the shallow GWC seen in Figure 6.
Trap - The main change to the post drill structure was to the South West towards the Eriboll high and the NE, Figure 5.
Charge/Migration - Studies concluded North Uist is part of a similar thermal regime to Eriboll to the South West. Gas condensate ~42.5 API, not oil was discovered at North Uist.

Pre drill estimates and post drill results can be seen in figure 5.

The pre-drill BCU horizon in comparison to the post drill BCU is shown in Figure 6. The BCU structure remains similar. The greatest difference is the actual GWC compared to that of the predicted column height. The actual GWC (13,609ft) is similar to the estimated pre-drill P90 column height (13,447ft).

The North Uist carboniferous reservoir is show in the 213/25c-1v composite log, Figure 7. Also shown are the key wireline logs and reservoir tests completed over this interval.
Figure 4. Geological summary of the North Uist prospect. Top BCU depth structure map. The red line shows the orientation of the seismic line across N.Uist and a geoseismic section through the same section. The line shows the relationship between N.Uist, Eriboll to the SW and S.Uist to the SE.

Seismic data: MegaSurvey Plus Phase 2 - Data Courtesy of PGS.
<table>
<thead>
<tr>
<th>Parameters</th>
<th>Pre-Drill</th>
<th>Post Drill</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCU depth (ft)</td>
<td>13310</td>
<td>13011</td>
</tr>
<tr>
<td>BHT (F)/ Pressure (psi)</td>
<td>290/-7000</td>
<td>312/-8500</td>
</tr>
<tr>
<td>Reservoir (0.5)</td>
<td>Jurassic and or Carbo / Devonian</td>
<td>Carbo/Devonian Upper and Mid Clair Group</td>
</tr>
<tr>
<td>Source (1)</td>
<td>Late Jurassic Kimmeridge Clay</td>
<td>Early Mid Jurassic and Cretaceous shales</td>
</tr>
<tr>
<td>Seal (0.9)</td>
<td>Cretaceous Mudstones</td>
<td>Cretaceous Mudstones (weak seal / over pressured)</td>
</tr>
<tr>
<td>Trap (1)</td>
<td>3-Way Tilted Fault Block</td>
<td>Confirmed</td>
</tr>
<tr>
<td>Charge (0.7)</td>
<td>Oil</td>
<td>Gas Condensate</td>
</tr>
<tr>
<td>Ave Porosity (%)</td>
<td>20 %</td>
<td>15 %</td>
</tr>
<tr>
<td>Gross (ft)</td>
<td>(1800 ft. J and C/D)</td>
<td>341 ft</td>
</tr>
<tr>
<td>Net (ft)</td>
<td></td>
<td>89 ft</td>
</tr>
<tr>
<td>NTG</td>
<td>0.5</td>
<td>0.26</td>
</tr>
<tr>
<td>RF (%)</td>
<td>36% (oil)</td>
<td>45-50% (mean for gas-condensate)</td>
</tr>
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Figure 5. Pre and post drill comparison

Figure 6. Pre & Post BCU Depth Structure Maps
Figure 7. Composite log of the key Carboniferous reservoir interval
6 Conclusions

Initial Prospect Resource Value & Remaining Resources

2008
Initial volumes at the time of the Nexen-Shell farm in:
Oil case volumes: STOIIP mean 796mmbbl, Max 4426mmbbl, 15-25% recovery factor.

2012
BP partner group - Pre-drill Volumes North Uist, mmboe: 431(P90) 1067(P50) 2066(P10)
1082(Mean) 20% recovery factor, 23% CoS
BP partner group - Pre-drill Volumes Cardhu, mmboe: 115(P90) 430(P50) 1028(P10) 518(Mean)
30% recovery factor, 25% CoS

2013
Nexen partner group - North Uist post-drill in place volume, mmboe = 20(P90) 104(P50) 324(P10)
144(Mean) 45-50% recovery factor for gas-condensate.

The 2013 discovery volumes in North Uist were smaller than initially predicted. The main fluid type
in North Uist differed from that of the expected pre-drill light oil, although a gas condensate
discovery was made. Containment/sealing potential is regarded as one of the major failure reason, as
the column height was not as substantial as expected. Further integration of this well data into
regional work has led to a better understanding of any additional prospectivity within the P1192
licence. As a result of this work Nexen has deemed it necessary to relinquish the P1192 licence.