

Our date
2012-05-14

Our reference
AU-EXP NOR ELNS-00018

Administrative officer

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Statoil Petroleum AS

1 of 8

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Licence Relinquishment Report PL415

Reference is being made to the MPE letter of 12.03.2012 regarding relinquishment of production licence 415.

1 INTRODUCTION

The initial period for Production Licence 415 expired February 16th 2010. An application for a three year extension to the work commitment schedule was sent in to the MPE in February 2009 but was not successful. PL415 is therefore fully relinquished.

2 BACKGROUND AND LICENCE HISTORY

Production Licence (PL) 415 was awarded February 16th 2007 with Hydro (Statoil Hydro Petroleum) being Operator with 100% share.

A two year initial period to decide on drill or drop was granted. Work obligations were to within February 16th 2009, collect 200 km² 3D seismic, within February 16th 2009 decide if a PDO should be prepared (BOV= Beslutning om Videreføring) and within February 16th 2010 file a PDO with the MPE.

Production Licence 415 is located in blocks 25/1 and 30/10 and covers the now abandoned gas fields Odin and Nord-Øst Frigg (Figure 1). The licence area is 271,891 km².

The business concept was to re-evaluate the rest potential in these fields as part of a revitalisation of the Heimdal area. Although the fields were abandoned it was considered possible that a new subsea development tied back to the Heimdal gas centre may be economical and contribute to an extended lifetime for the Heimdal installations.

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Statoil Petroleum AS

2 of 8

3 TECHNICAL WORK AND MEETINGS

To honour the work obligations the licence planned to acquire the 3-D seismic during Autumn 2007. The acquisition started in August that year however, after much bad weather, the acquisition was halted in November with approximately 80% coverage and considerable budget overruns (Figure 2). The remaining data was acquired in July 2008 (Figure 3). The processing of part one was received in April 2008 and the merged processing of parts one and two was received late October 2008.

The delays in the availability of the new seismic data set caused a squeeze as regards the further technical evaluations. However these were completed in January 2009 and are documented in a feasibility report (Ref. 1).

One Management Committee meeting has been held:

- MC NO. 1: June 27th 2007

4 PROSPECT EVALUATION

An evaluation of the potential for revitalisation of the Odin and Nord-Øst Frigg gas fields has been performed in 2008-2009. The evaluation includes

- processing and interpretation of new 3D seismic shot in 2007-2008
- petrophysical evaluation of well logs and fluid contacts
- centrifuge measurements at reservoir conditions of trapped gas after water flooding of core plugs from the Odin field, followed up by pore network simulations
- well inflow and well and pipeline hydraulics simulations
- geological reservoir modelling and evaluation
- reservoir simulation and uncertainty analysis.

The new seismic data did not provide any new observations of the current gas-liquid contact. The estimates of current gas cap volumes were made based on improved estimates of original in-place volumes together with history matched reservoir simulations of the primary production. The seismic interpretation did however indicate a deeper initial fluid contact (~+15m) in the eastern and southern parts of the Odin field which were previously undrilled (Figure 4).

5 RESOURCES

Nine different geological scenarios were included and history matched in the simulation work. The initial in-place volumes for Odin varied from 34,5 GSm³ to 53,1 GSm³. The volumes for Nord-Øst Frigg varied from 17.0 GSm³ to 28.6 GSm³. History matching of primary production yielded a range of current mobile gas volumes from 3.8 GSm³ to 18.1 GSm³ for Odin and from 1.5 GSm³ to 12.1 GSm³ for Nord-Øst Frigg.

Eight of the above nine cases formed the basis for simulation of the future production potential. A two template solution gave simulated reserves ranging from 3.1 GSm³ to 10.1 GSm³.

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A simplified uncertainty evaluation gave an expected reserve estimate of 3.8 GSm³, with low and high estimates of 2.3 GSm³ and 5.4 GSm³ respectively.

6 TECHNICAL / ECONOMICAL EVALUATIONS

The investments in a dedicated pipeline to the Heimdal formation, subsea templates on both Odin and Nord-Øst Frigg, and wells to all compartments on Odin, would require a high gas price to be economical. Since revitalisation of the Odin and Nord-Øst Frigg fields is a marginal project with large uncertainty which may have a negative economy, a low investment scenario was chosen as the 'base case' for economical evaluation.

A technical evaluation of a standalone development with two templates (three wells) tied back to Heimdal was carried out. This case gave a NPV before tax of approximately -1400 MNOK (Attachment 1).

A common development concept with another field is probably necessary, something which increases the complexity of the work required for a development concept. Frigg was the obvious candidate but work on Frigg was less mature than was the case for PL415.

7 SUMMARY AND CONCLUSIONS

The work programme for the initial period of PL415 has been fulfilled. The seismic data acquisition was acquired within the specified time and an evaluation concluded that a BoV decision could not be taken by 16th February 2009.

The new technical evaluation showed that there is an interesting, but uncertain, reserve potential on both Odin and Nord-Øst Frigg.

In addition to the subsurface uncertainties, two main factors remained to be resolved before a development plan could be made:

- A development of the resources would require major investments and, given the production downside (especially early water breakthrough), a joint development with another field to reduce the investment risk is probably necessary. Frigg was the most obvious candidate, but evaluations of the Frigg potential are still at a very early stage.
- The lifetime expectation of the obvious tie-in installation, Heimdal Gas Centre, was uncertain at the time of evaluation. New 3rd party users were required to safeguard a lifetime extension and to reduce the OPEX costs to which Odin and Nord-Øst Frigg would be exposed

An application for a three year extension to the work commitment schedule was sent in to the MPE but was not successful. PL415 is therefore fully relinquished.

All communication in the partnership is found on LicenseWeb, the seismic dataset NH0712 is loaded in PetroBank.

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Statoil Petroleum AS

5 of 8

NH0712 NE Frigg - Production from first shot

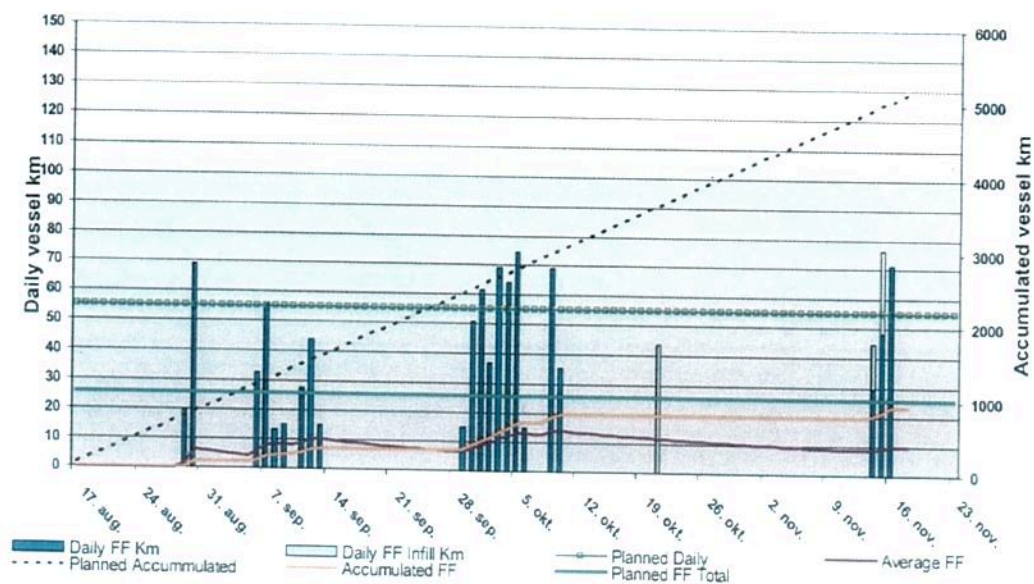


Figure 2: Extreme delays in seismic acquisition in 2007 due to bad weather. Acquisition completed summer 2008.

Our date
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Statoil Petroleum AS

6 of 8

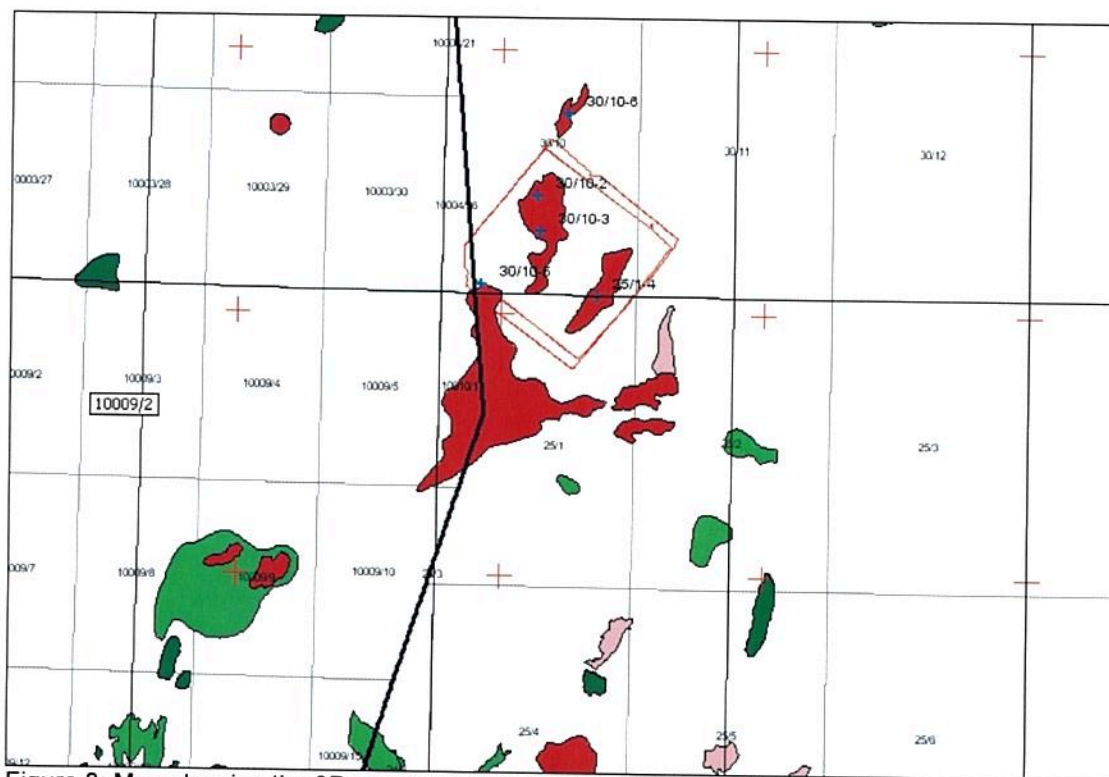


Figure 3: Map showing the 3D survey NH0712 covering Odin and Nord-Øst Frigg

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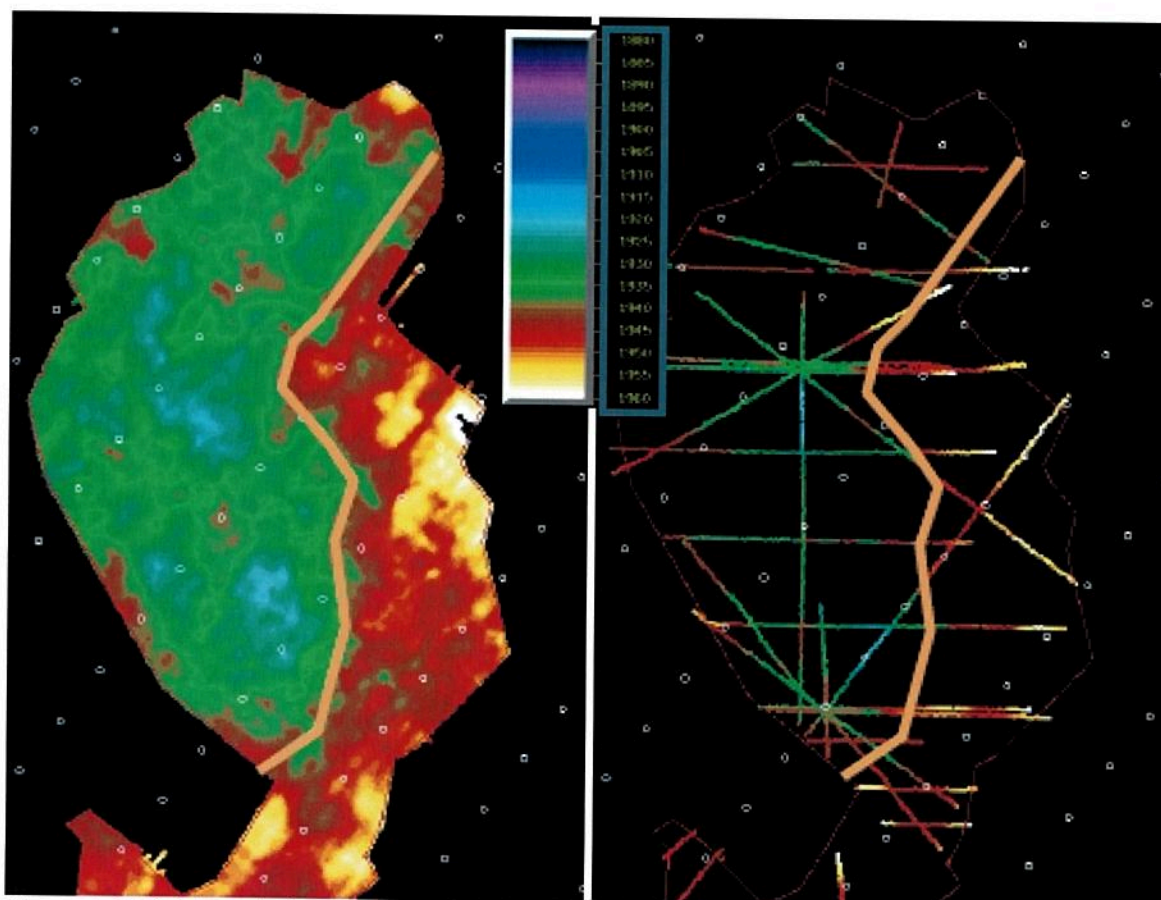


Figure 4: GLC interpreted on 3D (left) and GLC interpreted on different 2D-lines (right) shows a similar time variation of the contact.

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10 Attachments

1. Basis for the economic analysis

General

✓ Location:	: Block 30/10 & 25/1
✓ Lisencees:	: StatoilHydro (100%)
✓ Water depth:	: 120 m
✓ Reservoir depth/area@OWC	: 1935m / ~3+2 km ²
✓ Reservoir level	: Frigg fm.

Resources (in-place / recoverables)

✓ Gas [GSm ³]	: 6.3 / 2.34	(RF =37%)
✓ Cond [MSm ³]	: 0.046 / 0.017	(RF = 37%)
✓ Total recoverable resources [Mboe]	: 14.6 Mboe	

Development Solution

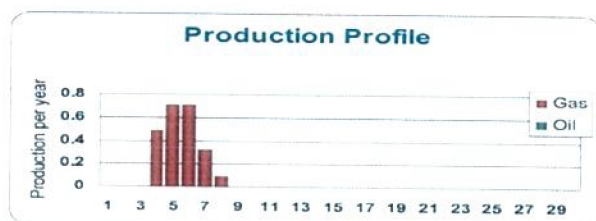
✓ Drainage strategy	: Depletion
✓ Field development concept	: 2 templates, subsea tie back to Heimdal (52+10km).
✓ Wells	: 2+1 GP
✓ Gas plateau rate	: 2 MSm ³ /d

Development Cost (MNOK-08)

✓ Capex facilities – Total 3050	: 450 modification cost
	: 700 wellhead systems
	: 800 flowline
	: 675 umbilical
	: 150 risers
	: 125 insurance
	: 275 management
✓ Capex wells - Total 1800	: 1600 + 200 (Appr) MNOK-08
✓ Tariffs oil (processing + transp)	: 18 NOK-08/Bbl
✓ Tariffs gas (processing + transp)	: 0.2 NOK-08/Sm ³
✓ Opex level	: 110 MNOK-08/year

Main Project Risks

✓ Main risk	: In-place volumes, water-free production
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Gasspris forutsetning: 2NOK/Sm³