

Relinquishment Report of Licence PL 470 in Blocks 6407/9 & 6407/12

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I KEY LICENSE HISTORY

Summary

PL 470 was awarded on 29th February 2008 through APA 2007 to the License Group:

- Centrica Resources (Norge) AS: 50% (Operator)
- Bayerngas Norge AS: 50%

The work commitments for the license and work periods were:

- Within 2 years from award (by 28th February 2010)
 - Drill one well 50 m into the Not Fm
 - Decision on Continuation or relinquish area
- Within 3 years from award (by 28th February 2011)
 - Submit PDO or relinquish area

The Group applied for a one year extension of the initial period in order to allow for the rig intake process and the well planning. The extension was granted by the Ministry of Petroleum and Energy (MPE) allowing 1 extra year to both drill the firm well and to make the Decision on Continuation before the 28th February 2011.

The Group drilled the Caerus Prospect in May 2010. The primary target in the Rogn Fm was not developed at the well location and no hydrocarbons were encountered in the proceeding Middle Jurassic beds.

Overview of Meetings

All meetings held in the license are summed up in Table 1.1.

Table 1.1 Summary of License Meetings.

Date	Meeting	Comments
8th May 2008	Kick-off Meeting	The official establishment of license and EC/MC groups.
21st November 2008	EC/MC Meeting	Updates on G&G work, CSEM acquisition and well planning in addition to proposed work programme and budget for 2009.
4th March 2009	Work Meeting	Updates from both Bayerngas and Centrica. Main focus on depth conversion.
14th May 2009	Work Meeting	EMGS presented results of acquired CSEM data (inconclusive). Updates from both Bayerngas and Centrica. Focus on updates volumes and well planning.
26th June 2009	EC Meeting	Updates on prospect evaluation and well planning. Discussed to drill deeper than required Not Fm and into the Ile Fm.
25th November 2009	EC/MC Meeting	Updates from both Bayerngas and Centrica. Main focus on depth conversion and volumes. Site survey and well planning and final well location also discussed in addition to proposed work programme and budget for 2010.
4th March 2010	Caerus Well Peer Review	Discussion on the final well programme, design and data acquisition.
25th November 2010	EC/MC Meeting	Major HSE, drilling and subsurface results from well 6407/12-3 were discussed. Updates on 2010 budget. The Operator recommended to relinquish license, to which Bayerngas agreed. Also proposed work programme and budget for 2011.

Reason for Relinquishment

The Group decided to relinquish PL 470 on 28th February 2011 as a result of the dry well in the Caerus Prospect (6407/12-3) and the lack of any other drillable prospectivity within the license acreage.

2 DATABASE

Seismic Database

All of the Caerus Prospect and most of the PL 470 license area is covered with 3D seismic in a merge of three datasets: SH9002, SH9104, and BPN9501. The remainder of the license is covered by 2D seismic - SH8403. The Group added three long offset MNR 2D lines to the database in order to assess and compare the AVO response across the Draugen Field in PL 093 with the Caerus Prospect and one lead in PL 470. The seismic database is tabulated in Table 2.1 and shown in Fig. 2.1.

Table 2.1 Seismic Database. 2D and 3D surveys in the common license databse. * = 3D surveys merged into one survey.

Seismic Survey	Data Type	Vintage	Owner	Type
SH9002*	3D	1990	Shell (public)	Nonexcl
SH9104*	3D	1991	Shell (public)	Nonexcl
BPN9501*	3D	1995	BP (public)	Nonexcl
SH8403	2D	1984	Shell (public)	Nonexcl
MNR06-7124	2D	2006	TGS/Fugro Geoteam	Nonexcl
MNR07-440	2D	2007	TGS/Fugro Geoteam	Nonexcl
MNR07-7135	2D	2007	TGS/Fugro Geoteam	Nonexcl

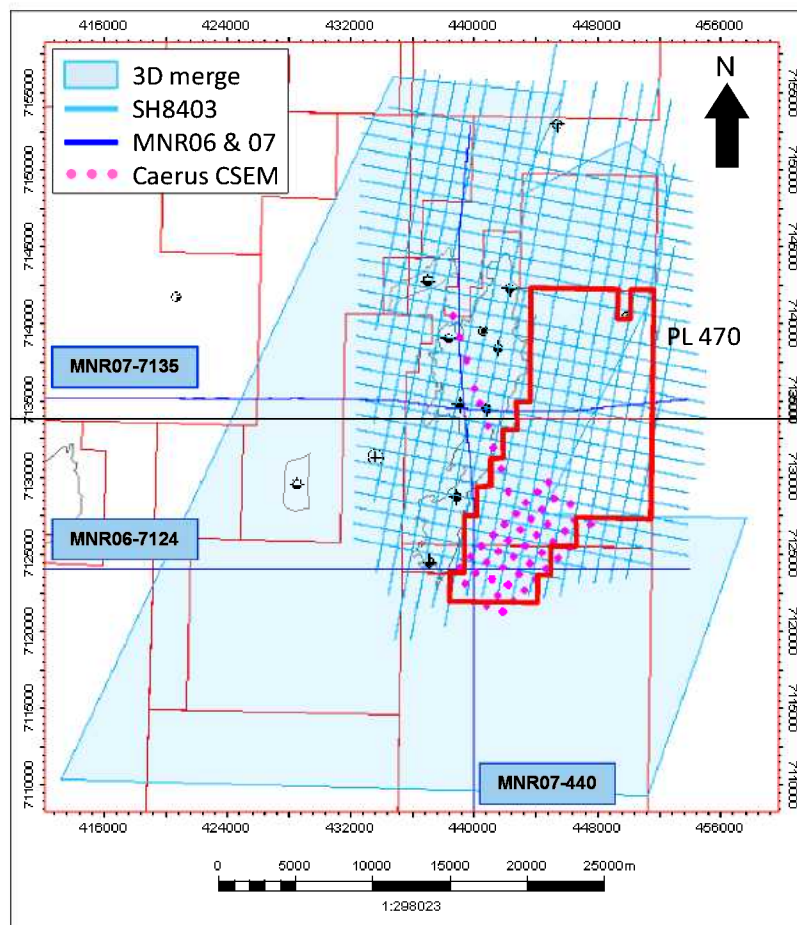


Fig. 2.1 Seismic and CSEM Database in PL 470.

Well Database

All released wells in the area was used to assess the prospectivity pre-drill. The main focus was on the exploration and appraisal wells on the Draugen Field (6407/9-1 to 6407/9-6; 6407/9-8 and 6407/12-1), but other wells were used to evaluate the prospectivity in a regional context (6407/8-1 to 6407/8-3; 6407/9-7; 6407/9-9 and 6408/4-1).

The Group drilled one well on the Caerus Prospect in May 2010 - 6407/12-3. A thorough analysis of the well results form the basis for the decision to relinquish the license.

In July 2010 the well 6407/12-3 (Caerus, PL 470) was traded with well 6407/12-2 (Pumbaa, PL 469). Although 6407/12-2 did not penetrate the Jurassic stratigraphy relevant to the main prospectivity in PL 470, the well has been analysed in order to evaluate any potential in the Paleogene section within PL 470.

CSEM Database

In 2009 the Group contracted EMGS to acquire the Caerus CSEM survey - a 3D controlled source electromagnetic (CSEM) survey across the Caerus Prospect with a 2D CSEM tie-line across the Draugen Field. The outline of the Caerus CSEM survey along with the seismic database is shown in Fig. 2.1.

3 REVIEW OF GEOLOGICAL FRAMEWORK

PL 470 is located in the Froan Basin, south of the Trøndelag Platform, south east of the Draugen Field. One prospect (Caerus) and three leads were identified (Lead 1, 2, 3) in the application for the acreage (Fig. 3.1). The Caerus Prospect was recognised as a combination of structural and stratigraphic closure, with a possible flat spot identified near the oil-water-contact (OWC) seen in the Draugen Field. The presence of a trap and migration was considered to be the main risks, and the overall probability of success calculated at 24%.

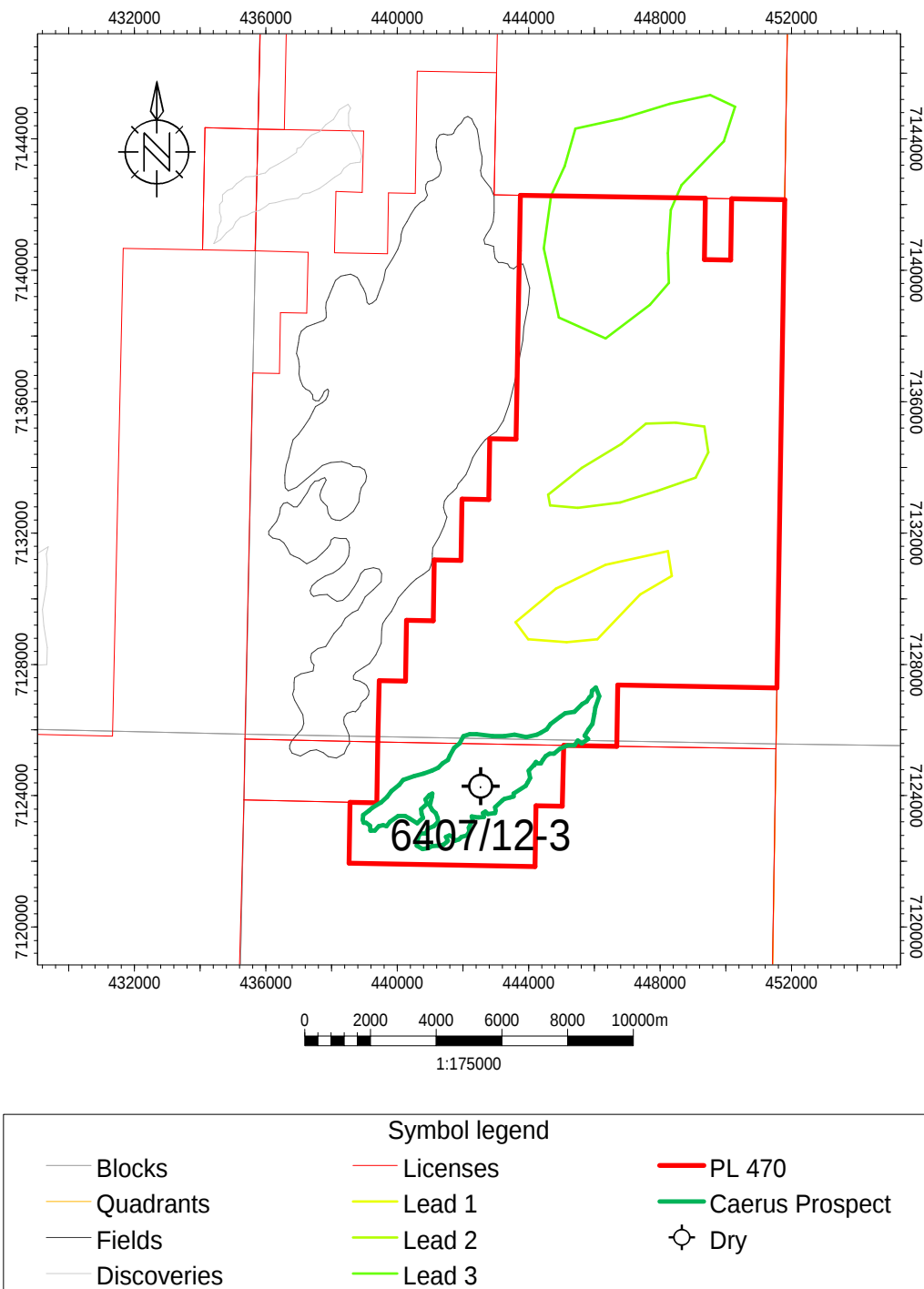


Fig. 3.1 Outline of PL 470 and Identified Prospects and Leads.

After being awarded the acreage, the Group initiated a series of studies and new data acquisitions in order to evaluate the prospectivity in PL 470. A summary is given here.

AVO analysis of MNR lines

Seismic Image Processing (SIP) was hired to analyse the three MNR lines added to the database (2 Database). All the MNR lines have 5 offset angle stacks (near, near-mid, full, far-mid and far angles), which were used to evaluate the AVO response over the Draugen Field and compare it to the prospectivity in PL 470. Rock physics analysis was performed on well logs from two Draugen wells (6407/9-3 and 6407/9-5) and tied to the seismic in order to calibrate the acoustic properties on the seismic to rock properties.

In general the study was non-conclusive with regards to the prospectivity in PL 470. The key findings were:

- Modelling suggests it should be possible to discriminate oil or gas from brine in the data
 - However nothing conclusive can be stated about the fluid content in the Lead 2 or in the Caerus locations
- It is possible to resolve the rock density from the seismic data and use this as a sand presence indicator
 - This suggests an alternative depositional model over both the Caerus Prospect and Lead 2. Although sand may be present, the density stack from seismic suggest it may be different to that seen in the Draugen Field.
- AVO effects are present at the Draugen Field on the three MNR lines, but nothing conclusive can be found in neither Caerus nor Lead 2 locations

CSEM Acquisition

Centrica enlisted Electromagnetic Geoservices (EMGS) to carry out a CSEM survey in PL 470. A 3D grid with 1 km receiver spacing was utilised over the Caerus Prospect area and a 2D tie line to the Draugen Field, covering the areas where most possible attic oil is left, in order to pick up a resistive response. The data acquired was generally high quality although the magnetic data was more affected by noise than the electric data at longer offsets. The attributes showed inconsistent responses and were evaluated not to be valid. The isotropic inversion showed a misfit which was too large between the recorded data and input model and therefore was not reliable. The calibration line across Draugen did not successfully identify the field; no conclusion regarding the Caerus Prospect could be drawn from the data.

Depth Conversion

After the award of PL 470 both Bayerngas and Centrica did independent updates of the pre-award depth conversion model. The approaches differed slightly, but the end results were very similar.

One model has been to divide the section from sea level down to the Rogn Fm into seven layers. Each layers was given its own interval velocity based on averages from all Draugen exploration and available appraisal wells. The average interval velocities based on check shot and VSP data was quality controlled against DT logs to confirm the calculated interval velocities.

Conclusions From Interpretations and Special Studies

Detailed mapping of the 3D seismic data after the award of PL 470 concentrated on the Upper Jurassic reservoir section and the primary target of the Rogn Fm. But a lot of work was also spend on mapping secondary targets in the Middle and Lower Jurassic section (Garn and Ile Fms) and on mapping key overburden horizons in order to constrain the depth conversion correctly.

The new mapping of the seismic data was combined with the results from special studies and new data into the pre-drill evaluation of the prospectivity in PL 470. In the application for the license in APA 2007 both trap and migration was identified as the main risk elements for the Caerus Prospect. However it was the reservoir presence and migration elements that were mostly affected by the post-awards evaluation.

Reservoir

The detailed 3D seismic mapping of the Rogn Fm indicated that the eastward pinch-out line of the sands was much closer to the Draugen Field than mapped pre-award. The most pessimistic interpretation mapped the pinch-out line to be located between the Draugen Field and the Caerus Prospect area, whereas a more optimistic interpretation located the pinch-out line along the eastern edge of the Caerus Prospect. This indicated that the Rogn Fm either would be completely absent or at best in the very distal part of the depositional fairway at the Caerus Prospect resulting in poor reservoir quality. Combining this mapping with the findings from the AVO study, which indicated that the rock properties at Rogn Fm interval would be different to what is found in the Draugen Field at the same level, the probability of finding an effective reservoir was decreased.

Migration

The new depth conversion models pushed the top of the potential Rogn Fm reservoir deeper than initially expected pre-award. And even deeper than the initial OWC observed in the Draugen Field. This increased the risk of hydrocarbon migration into the Caerus area from the Draugen area never would have taken place. Neither the CSEM nor the AVO studies were able to conclude anything about the presence of hydrocarbons in the prospect or leads in PL 470 and were not able to change the risk related to the migration element in either positive or negative direction.

4 PROSPECT UPDATE

Caerus Prospect

The potential Rogn Fm was mapped in detail following the award of PL 470. It became evident that the thickness and distribution of sands may not be as good as perceived in the APA 2007 application. Stepping away from the Draugen Field, especially eastwards, the Rogn Fm thins drastically and approaches what is resolvable in the seismic data (Fig. 4.1). A big uncertainty was there associated with whether Rogn Fm sands would be present at the Caerus well location. At the same time the AVO study suggested that the rheology at Rogn FM level might be different in the Caerus Prospect compared to the Draugen Field (3 Review of Geological Framework).

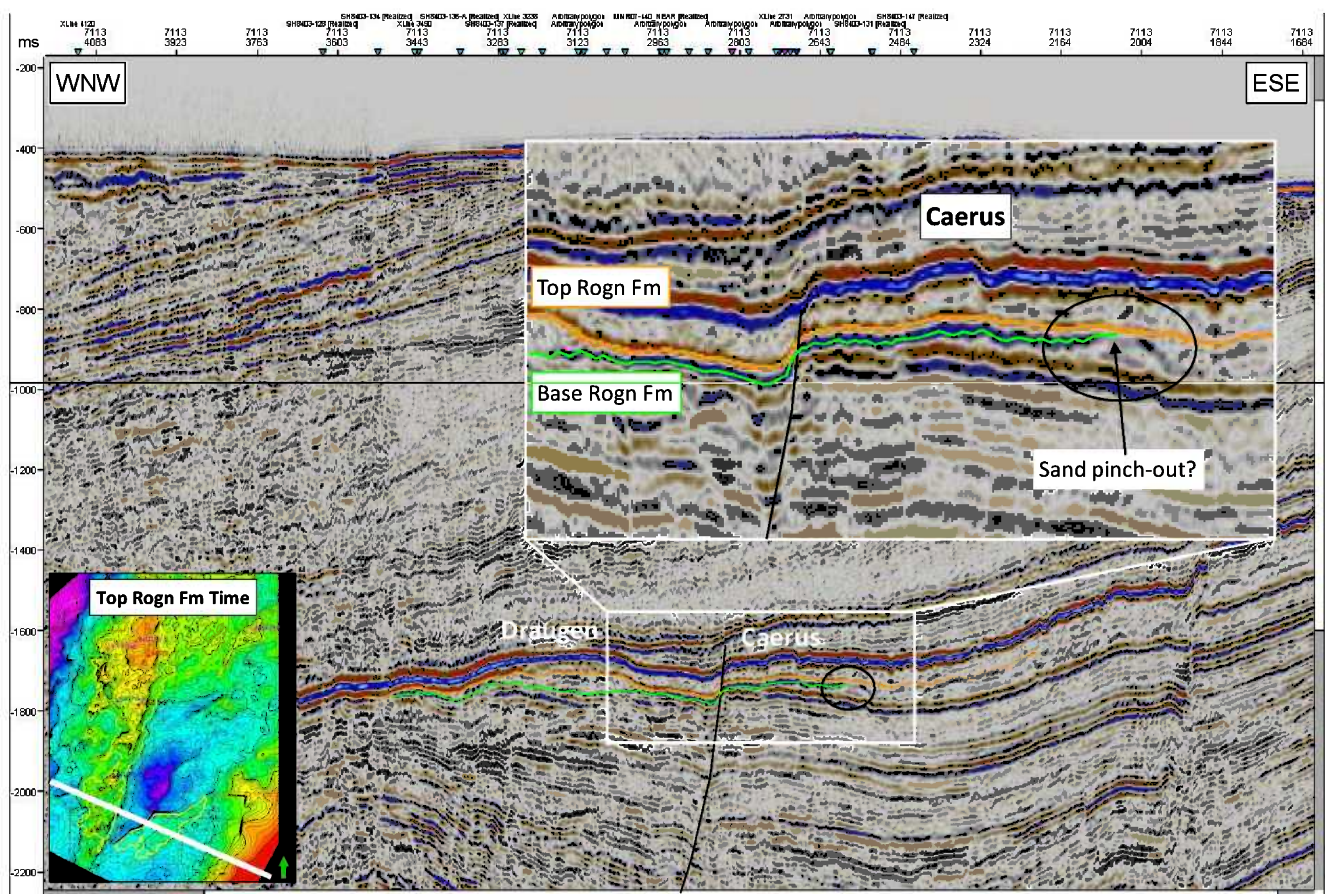


Fig. 4.1 Arbitrary Seismic Line over Crest of the Caerus Prospect and the Draugen Field. Note the thinning of the Rogn Fm eastwards away from the Draugen Field. As the thickness of the sandstone unit approaches seismic resolution it becomes difficult to assess the pinch-out location.

The updated depth conversion also had a major impact on the prospect evaluation in the license. In the APA 2007 application it was assumed that the crest of the Caerus structure was at 1575 m TVDSS. Combined with an original OWC in the Draugen Field at 1638 m TVDSS this was positive for the filling of the Caerus Prospect with hydrocarbons migrating through spilling from the Draugen Field. However with the new depth conversion model (3 Review of Geological Framework) the crest of the Caerus structure was at 1649 m TVDSS (Fig. 4.2). This was 74 m deeper than earlier evaluation assumed and 11 m deeper than the OWC in the Draugen Field.

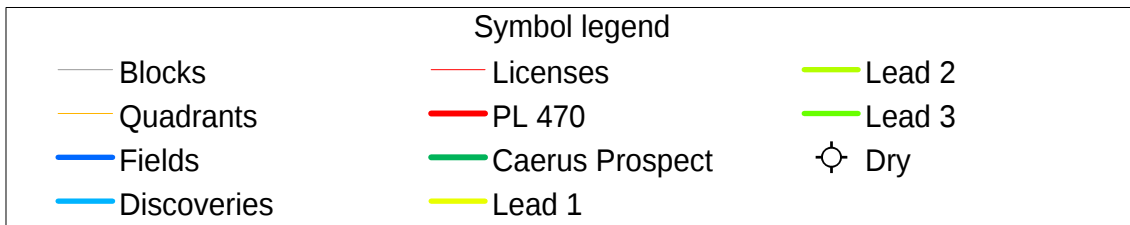
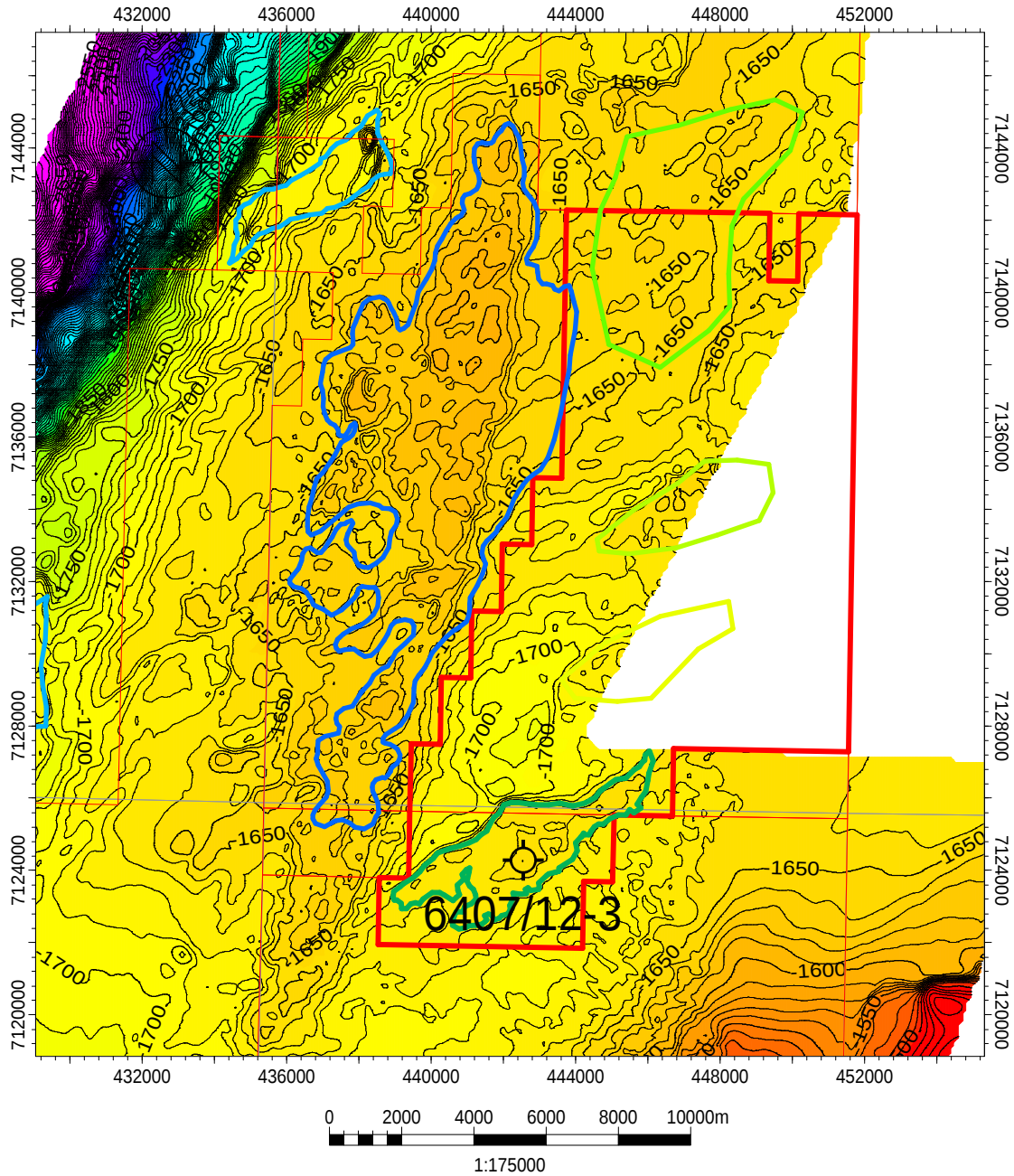


Fig. 4.2 Top Rogn Fm Depth Map. Depth map based on the 3D seismic interpretation with a contour interval of 10 m.

Pre-drill Volumetrics and Risking

The updated mapping and depth conversion reduced the resource estimates of the Caerus Prospect significantly between from pre-awards estimates to the pre-drill assessment. The main change was the possibility of the Rogn Fm sands shaling out before entering the prospective areas. This resulted in lower gross rock volumes and thinner reservoir thickness. The updated depth conversion resulted in a deeper crest of the Caerus structure and hence a smaller hydrocarbon column in the prospect. The differences in the resource estimates and input parameters are tabulated in Table 4.1.

Table 4.1 NPD Table 1 - Prospect Data. Comparison of resource estimates and input parameters to the volumetrics from the APA 2007 evaluation (in black) versus the pre-drill assessment in 2010 (in red).

Block	Prospect name		Discovery/Prosp/Lead		Prosp ID (or New!)	NPD approved?
6407/12	Caerus		Prospect		<i>NPD will insert data</i>	<i>NPD will insert data</i>
Play (name / new)	Structural element		Company/ reported by / Ref. doc.			Year
<i>NPD will insert data</i>	Trøndelag Platform		Bayergas and Centrica Energi			2007 / 2010
Oil/Gas case	Resources IN PLACE					
Oil	Main phase			Ass. phase		
	Low	Base	High	Low	Base	High
Oil 10 ⁶ Sm ³	42 / 2.4	60 / 9.2	70 / 35.6			
Gas 10 ⁹ Sm ³	5.6 / 0	6.2 / 0	6.8 / 0			
	Resources RECOVERABLE					
	Main phase			Ass. phase		
	Low	Base	High	Low	Base	High
Oil 10 ⁶ Sm ³	18 / 0.96	36 / 3.8	42 / 14.9			
Gas 10 ⁹ Sm ³	5 / 0	5.5 / 0	6.1 / 0	0.05	0.23	1.09
Which fractiles are used as:		Low:		P90	High: P10	
Type of trap	Water depth (m)		Reservoir Chrono (from - to)		Reservoir Litho (from - to)	
Structural and Stratigraphic	250 / 288		Upper Jurassic		Rogn Fm sands	
Source Rock, Chrono	Source Rock, Litho		Seal, Chrono		Seal, Litho	
Upper Jurassic	Spekk Fm shales		Upper Jurassic		Spekk Fm shales	
Seismic database (2D/3D):		SH8403 (2D), MNR06 & 07 (2D), SH9002/SH9104(BPN9501 (3D))				
Probability of discovery:						
Technical (oil+gas case)		0.24		Prob for oil/gas case		1/0
Probability (fraction):		Reservoir (P1)	Trap (P2)	Charge (P3)	Retention (P4)	
		0.7	0.65	0.58	0.9	
Parametres:		Low	Base	High	Comments	
Depth to top of prospect (m)		1582	1575 / 1649	1569		
Area of closure (km ²)		13.5 / 1.1	15.9 / 5.6	17.2 / 10.8		
Reservoir thickness (m)		24 / 1	30 / 17	35 / 49		
HC column in prospect (m)		59 / 0	66 / 14	72 / 18		
Gross rock vol. (10 ⁹ m ³)		0.237 / 0.02	0.303 / 0.06	0.336 / 0.24		
Net / Gross (fraction)		1 / 0.7	1 / 0.83	1 / 0.95		
Porosity (fraction)		0.2 / 0.22	0.3 / 0.27	0.34 / 0.32		
Water Saturation (fraction)		0.3	0.2	0.1		
Bg. (<1)			-			
Bo. (>1)		1.14	1.2	1.26		
GOR, free gas (Sm ³ /Sm ³)			-			
GOR, oil (Sm ³ /Sm ³)		35	61 / 47	60		
Recovery factor, main phase		0.28 / 0.29	0.6 / 0.4	0.7 / 0.54		
Recovery factor, ass. phase						
Temperature, top res (deg C) :		100 / 70	Pressure, top res (bar) :			

The well in the license was a commitment well as part of the work programme for the license. As such the Group did not go into any discussions about the individual risk elements of the Caerus Prospect or the overall probability of discovery between the award of the license and drilling the well. However the evaluation of both reservoir and migration reduced the perceived probability of discovery significantly from the pre-award 24%, without the reduction being quantified.

Results from Well 6407/12-3

The well 6407/12-3 on the Caerus Prospect confirmed that the Rogn Fm sands shale-out somewhere between the Draugen Field and the well location (Fig. 3.1). This was a key risk pre-drill. The main targeted reservoir formation was absent in the prospect.

At the level where the Middle Jurassic Garn Fm was targeted, the well did penetrate sandstone, but not from the Garn Fm. It was Melke Fm sands without any hydrocarbon indications. The Garn Fm equivalent was shaly at the well location. This changes the understanding of the depositional system of the Garn Fm in the area, but it did not change that the remaining prospectivity within the license was evaluated to be uninteresting.

More information about the results from the well can be found in the document "Final Well Report, Well 6407/12-3 - Caerus".

Remaining Prospectivity

In addition to the Caerus Prospect three leads were identified within or partly within PL 470 prior to the award of the license (Fig. 3.1). All the leads were affected by the updated mapping of pinch-out of the Rogn Fm and were pushed deeper than initially estimated by the updated depth conversion (3 Review of Geological Framework). Following the dry well result in well 6407/12-3 all leads were evaluated either to be non-existing or too small to be worth to pursue any further.

5 TECHNICAL EVALUATIONS

Prior to drilling the well 6407/12-3 on the Caerus Prospect the development of any potential hydrocarbons within PL 470 was evaluated. The most likely development scenario was as standard 4 slot sub-sea template tied-back to the Draugen Platform. Any gas was to be exported to Kårstø via the Åsgard Transport System and oil exported via the shuttle tanker at the Draugen Platform. The reservoir was to be produced with one horizontal well and one water injector in the P50 case.

As the well 6407/12-3 was dry, no further technical evaluation regarding development scenarios in PL 470 have been performed post-drill.

6 CONCLUSIONS

Any potential hydrocarbon accumulation in the Caerus Prospect up-dip of the dry well 6407/12-3 along with the remaining prospectivity within PL 470 (Leads 1, 2 and 3) has been evaluated either to be non-existing or too small to be worth further exploration activity. This is due to the new understanding of the distribution of Rogn Fm sands gained from the well 6407/12-3 as described in previous sections and in the "Final Well Report, Well 6407/12-3 - Caerus".

As a result the License Group has decided to relinquish the license entirely.