# PL556 Relinquishment Report





## Relinquishment Report PL556

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## 1 Key License History

#### **Award and Participants**

PL556 was awarded to LOTOS EPN and Skeie Energy AS on the basis of an application prepared by Skeie Energy AS. Both companies were awarded a share of 50% each. LOTOS EPN was assigned as operator for the license.

The main prospect in the license is the Snowlion which target the Jurassic (Aalenian) lie Fm in a combined structural-stratigraphic subcrop trap sealed by Spekk Fm. and Not Fm. shales.

#### **Work Obligations**

Initial work obligations have been summarized in Fig. 1.1.

Work Program	2010	2011	2012	2013	2014	2015	2016	2017	2018	Formal Period
Geological and Geophysical Studies							,			19.02.2010 – 19.02.2011
Decide to Drill or Dro <b>p</b>					10	) 				
Drill well(s)										19.02.2011 – 19.02.2013
Decide to Continue or Drop										
Develop PDO										19.02.2013 – 19.02.2015
Submit PDO or Drop										

Fig. 1.1 Work program in PL556.

The license group should perform relevant geological and geophysical studies in order to decide on drilling a well or dropping the license wiithin the first year after being awarded the license. A detailed summary of the work performed within the first year of the license period is shown in Fig. 1.2.

PL556												
Work Tasks	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Database												
Reprocess seismic	c	ē.	18		0							
Interprete seismic					S							
Evaluate risk and economics					11		4					
Discussion with partners on decision												
Optional inversion study		-2	et.		T <sub>E</sub>		E.	10				

Fig. 1.2 Detailed work program for 2010. The work program includes detailed geological and geophysical studies aiming to build up to a drill or drop decission.

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If the license group choose to go forward a plan for development of the license should be prepared within the end of 2013, three years after being awarded the production license.

#### **Overview of Meetings**

An overview of meetings held in the license and the subjects discussed is presented in Fig. 1.3.

Meeting	Date	Agenda
		Establishing the license, administrative procedures and exploration strategy
MC-EC meeting	21.04.2010	Establishing the license, administrive procedures and exploration strategy. Review and discussion of the Snowlion Prospect, budget and work program
MC-EC meeting	21.12.2010	Exploration status, budget and work program for 2011, outlook 2012/13
Work meeting	05.01.2011	Review of fault interpretation and well-ties
Work meeting	10.01.2011	Volume estimates and risk
MC meeting	18.02.2011	Recommendation to MC regarding relinquishment, 2011 budget and work program

Fig. 1.3 Overview of meetings.

It should be noted that during the first stage of reprocessing of the seismic survey MC3D-HT-MegaMerge several informal work meetings were held to evaluate the quality of the work performed by the two external vendors given the assignment to enhance the quality of the seismic.

#### Reason for Relinquishment

Detailed geological and geophysical studies have critically changed the geometry of the structure first presented as the Snowlion IIe prospect in APA 2009.

The risked volume potential is significantly below the economic threshold. The upside estimate for the Snowlion lie prospect is significant taking the whole structure into consideration, however only a minor part is located within the license area of PL556-the majority of the prospect is located within the licensed area to the north (PL348). In addition the risk related to the upside case is high.

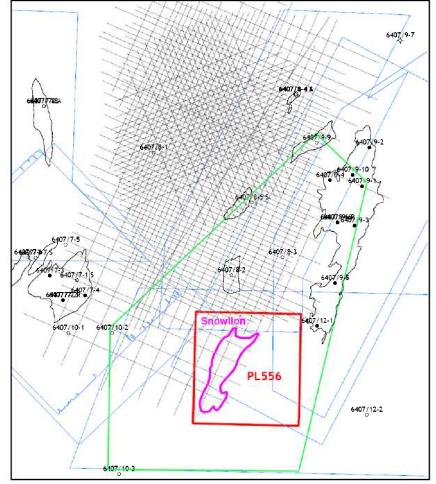
On the basis of the estimated resource potential and assessment of the risk related to these volumes it is not recommended to enter the second phase of the exploration period and comit to the drilling of an exploration well into the Snowlion Ile prospective intervals. Hence the PL556 partnership seeks to relinquish the license.

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### 2 Database

A common seismic and well database was established in the license group. The database consists of publicly available wells, 2D and 3D seismic data in addition to the commercial PGS MegaMerge 3D survey (Fig. 2.1).

- · Seismic Database
  - · PGS MegaMerge (part)
  - · Public 3D surveys
  - Public 2D surveys
- Well Database
  - All public wells in block 6407/7, 6407/8, 6407/9, 6407/10, and 6407/12
- Key Wells
  - 6407/8-3
  - 6407/8-2
  - 6407/12-1



**Fig. 2.1 PL556 common database**. Map showing wells and seismic data incorporated into the project. The green polygon outlines the study area with 2D and 3D seismic data displayed in grey and blue.

In order to improve the confidence in interpretation of the Snowlion structure, especially concerning the <u>northeastern spill point</u> and the <u>westward extension of the Ile Fm.</u>, it was decided to reprocess the MC3D-HT-MegaMerge survey in order to improve the frequency spectrum and fault definition. Two companies were asked to test their solutions for seismic spectrum enhancement as they provided post-stack processing.

Fugro Seismic Image (FSI) applied a -2dB/sec correction to balance the data after an amplitude-only inverse Q filter (Q=100) had been utilized. In addition, a spectral shaping filter, using a single window of 15-60 Hz, was applied in order to enhance seismic frequency.

The second company, The Foster Findlay Associates (ffA), started by improving the signal to noise ratio by applying a noise cancellation filter. Afterwards, spectral enhancement processing to increase the vertical resolution of the seismic was applied.

The tests demonstrated that some improvement in the data quality could be achieved by post-stack reprocessing.



FSI's solution yielded a significant improvement in frequencies just below the BCU, but mainly in the areas where the uppermost Middle Jurassic section is preserved. A slight increase in noise could also be observed.

The ffA's method slightly increased the vertical resolution, significantly improved the signal to noise ratio and smoothed the seismic data.

As only minor improvements to the data set were achieved, the license group decided to explore their in-house software, Petrel, to see if similar results could be attained prior to decision on continuation with the external vendors. The licensees concluded that similar results to what had been achieved by the external vendors could be accomplished by using the first derivative of original PGS data and applying structural smoothing with a small size vertical filter. Underneath, a comparison of the different results of the two vendors and in-house work is presented.

In conclusion - as non of the external companies managed to deliver convincing improvements in the data quality, it was decided to proceed based on the Petrel suite of applications and update the mapping and evaluation of the Snowlion prospect on that basis.

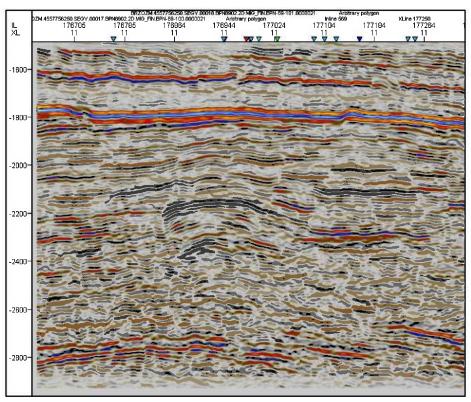


Fig. 2.2 FFA reprocessing of MC3D-HT-MegaMerge.

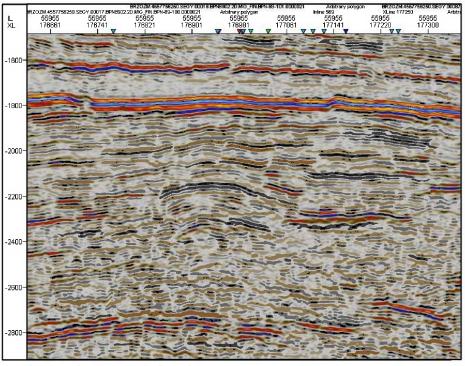


Fig. 2.3 Result after seismic enhancement in Petrel.

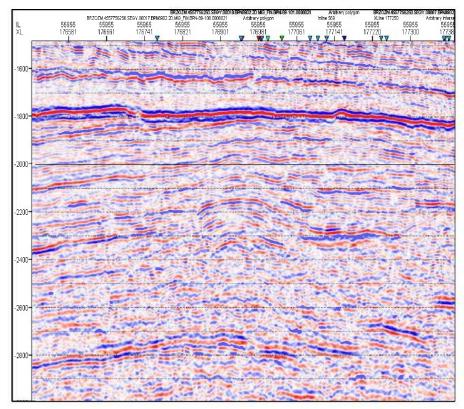


Fig. 2.4 FSI reprocessing of MC3D-HT-MegaMerge.

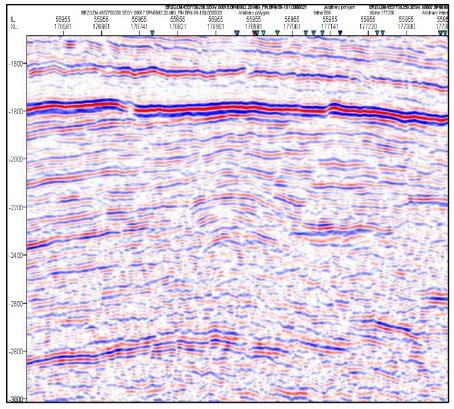


Fig. 2.5 Result after seismic enhancement in Petrel.



## 3 Review of Geological Framework

PL556 is a part of block 6407/11 located immediately to the SW of the Draugen Field and SE of the Njord Field in the Vingleia Fault Complex near the northeastern margin of the Frøya High (Fig. 3.1).

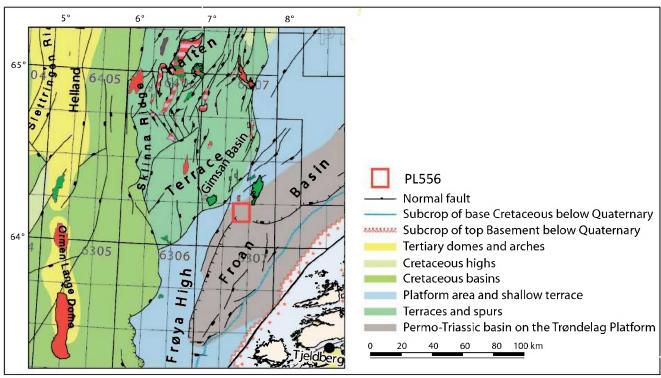


Fig. 3.1 PL556 overview map.

Within Quadrant 6407, the main plays are tilted fault blocks and structural mounding of Jurassic reservoir sands of the Fangst and Båt Groups, sealed by upper Jurassic Ryzanian to Oxfordian Spekk and Melke Fm. shales. To date, all the commercial and potentially commercial hydrocarbons that have been discovered in the southern part of Quadrant 6407 have reservoir within the Jurassic. The Upper Triassic "Grey Beds" and "Red Beds" are also potential reservoirs provided traps can be sealed by suitable overlying shales. The Tertiary and Cretaceous sections do not contain any proven plays in the area around Quadrant 6407. The evaluation of PL556 did not identify any potential in either the Tertiary or the Cretaceous. A play concept diagram for the area is presented in Fig. 3.2

The key Upper Jurassic Spekk Fm. source rock is regarded as immature in the PL556 area and along the Draugen trend. To charge the structures one is relying on migration from the northwesterly adjacent Gimsan Basin (Fig. 3.3).

#### Seismic Interpretation

On a detailed scale changes in the interpretation of the Top Ile Fm. have significantly altered the understanding of the Snowlion Ile Prospect in PL556. Therefor, a summary of the work done is presented in the following sections.

The change made applies to parts of the Top Ile Fm. seismic event which were interpreted as a peak anywhere the Top Ile Fm. could be identified in the APA 2009 application. Where the Not Fm. is preserved over the Ile reservoir no changes have been made when picking the seismic event, but where eroded the Top Ile reservoir

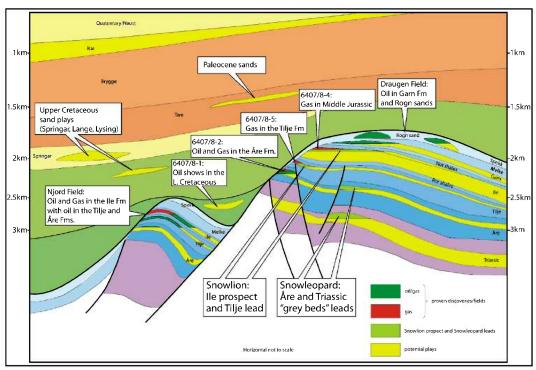


Fig. 3.2 Conceptual play diagram for the area of interest

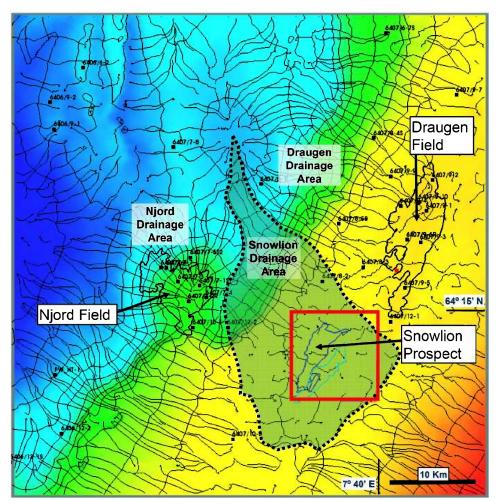


Fig. 3.3 Drainage pattern at the BCU. Map with orthocontours at the BCU/Top Spekk Fm. The Draugen and Njord Fields were charged via migration from the northwest and west. The PL556 drainage area is shaled in green.



have been picked as a trough at the base of the Spekk Fm. Previously, the Top IIe reservoir had been picked as a peak identified as an uncoonformity at the base of the Spekk Fm. in these areas (see Fig. 3.4 and Fig. 3.5).

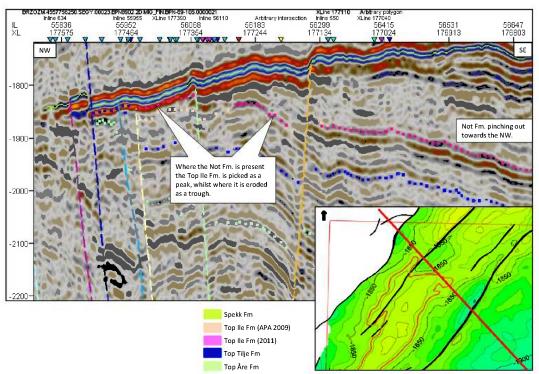


Fig. 3.4 Arbitrary inline across critical structural spill point.. In this seismic cross section the differences between the original pick of the top Ile Fm. and the updated interpretation are shown.

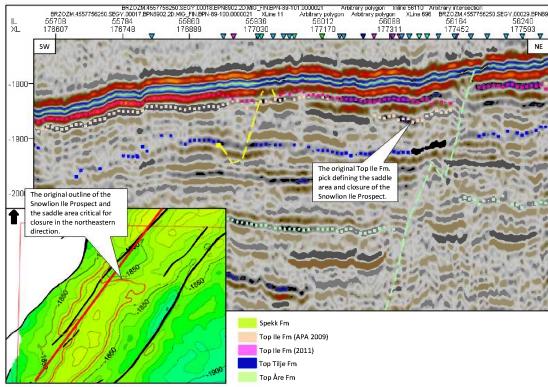


Fig. 3.5 Arbitrary strike line across critical structural spill point.. In this seismic cross section the differences between the original pick of the top IIe Fm. and the updated interpretation are shown. By shifting the interpretation up in the critical saddle area the Snowlion structure no longer close towards the northeast. Note that the base map originates from the APA 2009 application.



The understanding of the top IIe reservoir seismic event is based on well-ties to well 6407/8-3 (Fig. 3.6) and differences in acoustic impedance between shales of the Not Fm. and Spekk Fm.

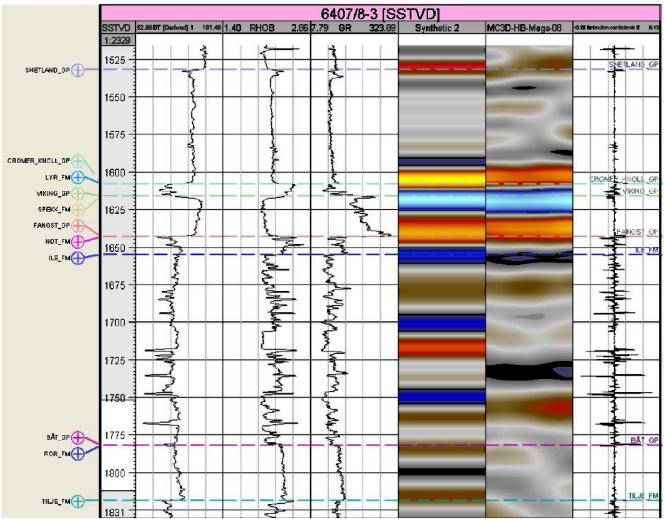


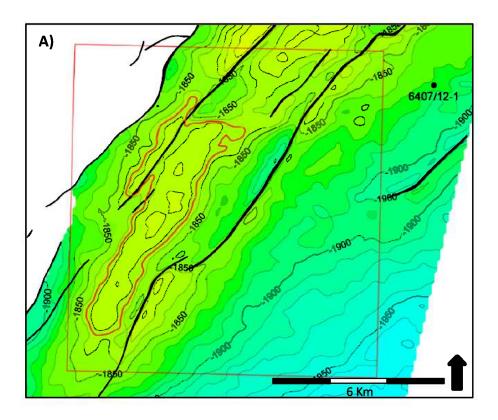
Fig. 3.6 Well-tie to 6407/8-3.

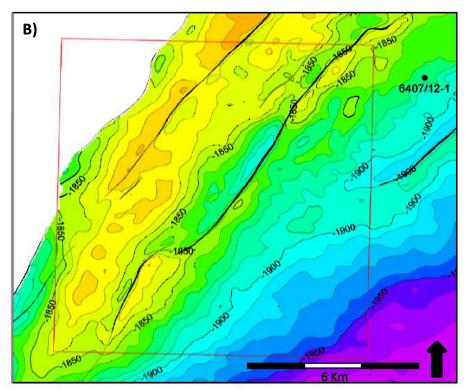
#### Changes in Structural Understanding

With a new understanding of the Top Ile Fm. seismic event and a post-stack reprocessed 3D survey better confidence in the interpretation of the main prospect, Snowlion Ile, was achieved. It was early on recognized that the spill point in the northeastern part of the prospect was critical to study in detail as the saddle area is heavily faulted and on the original PGS data it was difficult to pick the Top Ile Fm. seismic event with a high degree of confidence across the faults. The problem of picking the event was not only due to poor data quality in the specific area, but also a component of transtensional shear movement of the faults resulting in variable reflectivity and seismic character of the top Ile Fm. across the faults.

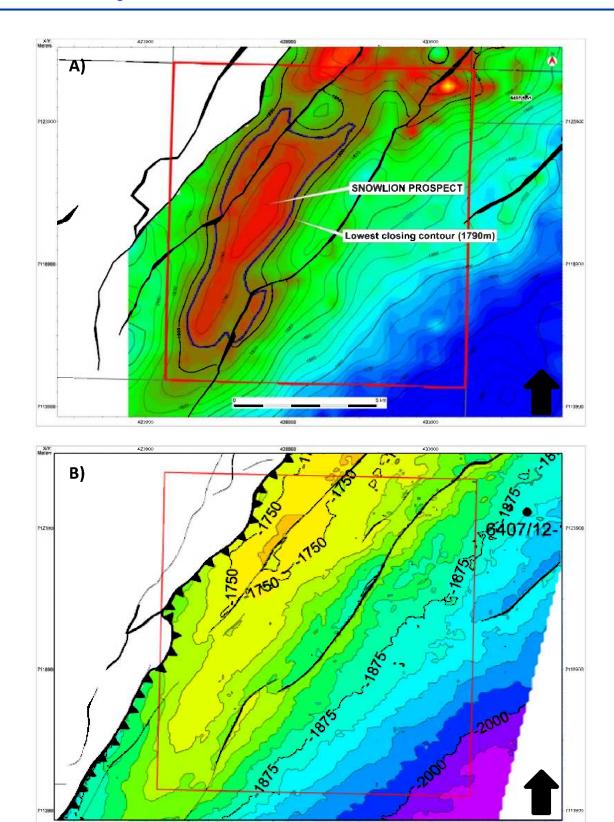
After reinterpretation of the data the Snowlion Ile Prospect has a much smaller closure within PL556 as demonstrated on the time and depth maps in Fig. 3.7 and Fig. 3.8. It should be noted that due to the low relief (25m) of the original Snowlion prospect it is easily affected during domain conversion from time to depth, hence a big effort was put in quality checking the velocity model.

The best result was obtained using a layer cake model based on publicly available well information and seismic migration velocities. Due to limited well information the model is largely based on the seismic velocities.





**Fig. 3.7 Top lle Fm. time maps**. A) The top reservoir time map with maximum closure drawn in red as included in the 2009 license application. The critical point of closure can be seen as a saddle in the NE. B) The updated time map of top lle Fm. The Snowlion structure opens up in the northeastern direction as the saddle point has been removed.



**Fig. 3.8 Top lle Fm. depth maps**. A) The original Top lle Fm. depth map with maximum closure drawn in red. B) The updated Top lle Fm. depth map. No structural dip closure can be seen in the northeast as on the original maps.



## 4 Prospect Update

#### **Original Snowlion Ile Prospect**

The Snowlion Ile Prospect is a combination structural-stratigraphic sub-crop trap sealed by Spekk Fm. and Not Fm. shales.

In the production license application of 2009 the Snowlion Ile prospect was presented as a SW-NE elongate faulted anticline with a mapped crest at 1765 meter and the lowest closing contour at 1790 meter. On the original maps the closure is robust in the NW and SE dip directions together with the SW strike direction, with the spill point occurring in the NE strike direction (see Fig. 3.7A and Fig. 3.8A). This spill point was early on recognized as critical for the structure to close and was studied in detail after reprocessing of the MC3D-HT-MegaMerge survey.

Reservoir and fluid parameters used when estimating volumes in GeoX were attained from offset wells, weighted towards the Draugen area, and are presented in Fig. 4.1. P90, Mean and P10 estimates of recoverable resources were quoted as 4.85, 7.00 and 9.73 million Sm³ of oil accompanied by minor amounts of gas.

The trap and charge of the Snowlion lle prospect were the two main risk elements related to the prospect (Fig. 4.1). Due to the uncertainty related to structural closure in the northeastern part of the Snowlion lle structure, the trap was assigned a value of 0.6. In addition, charge was given a value of 0.4 as the drainage area is of a limited extent and the migration pathway is not straight forward. All risk parameters combined, the original Snowlion lle prospect carried a probability of discovery of 17%.

#### **Updated Snowlion Ile Prospect**

After in-house seismic data enhancement of the MC3D-HT-MegaMerge survey the Snowlion Ile prospect was remapped as described in section 3 Review of Geological Framework. As illustrated in Fig. 3.7B and Fig. 3.8B there is a very small closure of the structure in the area previously addressed as the critical saddle point on updated time or depth maps. However, closure at top Ile Fm. level can be seen further to the northeast.

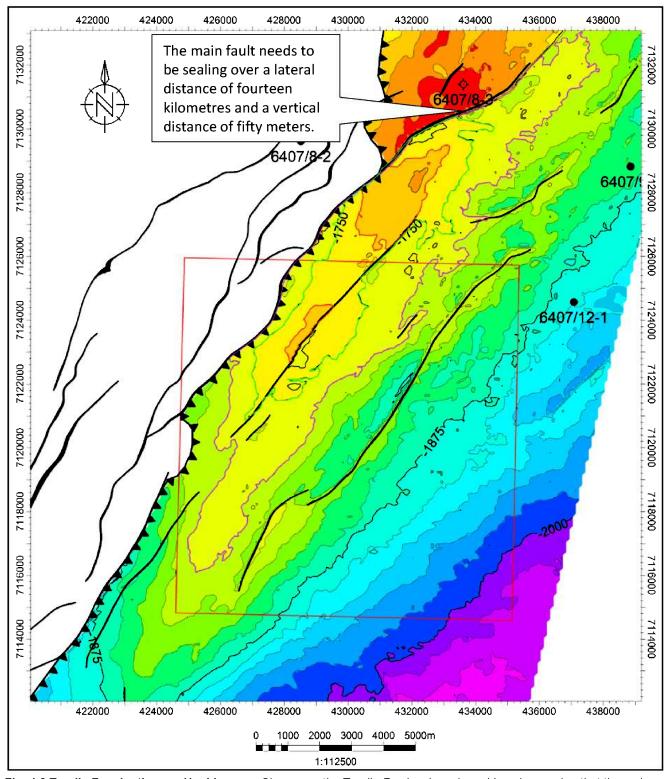
Two cases were calculated when estimating potential volumes. One case assuming that the main fault to the west is sealing and another case assuming that the same fault is not sealing.

If assuming faults to be sealing in the northeast as demonstrated in Fig. 4.2, a big risk is related to the trap as the main fault has to be sealing over a lateral distance of fourteen kilometers and fifty meters in the vertical direction with Ile-Tilje or Ile-Ile deposits being juxtaposed across the fault to define the P10 case. Despite significant potential within the structure only a small part of the volume sits inside PL556. Based on GRV distribution it is estimated that volumes within the license is in the range of 0.1 to 15.2 million m³ of oil. When estimating potential volumes in GeoX, no changes have been made when assessing reservoir or fluid parameters apart from gross rock volumes and hydrocarbon columns. P90, P50 and P10 estimates of recoverable resources are 1.64, 11.9 and 44.1 million Sm³ of oil (see Fig. 4.3). Due to the uncertainty of fault seal efficiency the risk related to the trap have been down rated from 0.6 to 0.25 leaving the prospect risk at 0.07. In conclusion, the upside case of the Snowlion Ile prospect is of high risk but with a significant amount of recoverable resources.

In the base case faults are assumed to be non-sealing and the structure is defined by 4-way dip-closure Fig. 4.4. The risk related to the trap have been set to 0.6 in this case as one is not relying on faults to be sealing. In total

Block	Prospe	ct name	Discovery/	Prosp/Lead	Prosp ID (or New!	NPD approved?	
6407/11	0.57	vlion	Pros	pect	NPD will insert data	NPD will ower data	
Play (name / new)	Structura	l element		ny/ reported by / R	ef. doc.	Year	
NPD will mased data		ult Complex		nergy AS/APA Ap		2009	
Oil/Gas case	· ingreio zu	ar compres	Resources	2009			
		National and	Resources	INTEACE	A 121		
OIL		Main phase			Ass. phase		
	Low	Base	High	Low	Base	High	
Oil 10 <sup>6</sup> Sm <sup>3</sup>	12.4	17,6	24	-	-	-	
Gas 10 <sup>9</sup> Sm <sup>3</sup>	-	-	-	0,35	0,67	l,l	
			Resources RE	COVERABLE			
		Main phase			Ass, phase		
	Low	Base	High	Low	Base	High	
Oil 10 <sup>6</sup> Sm <sup>3</sup>	4,85	7,00	9,73		-	-	
Gas 10 <sup>9</sup> Sm <sup>3</sup>	_	_	-	0,14	0,26	0,45	
	Which fractil	es are used as:	Low;	P(90)	High:	P(10)	
Type of trap		epth (m)	i i	ono (from - to)	7	ho (from - to)	
		90		nian			
Structural		<u> </u>			Ile Fm		
SourceRock, Chrono		ock, Litho		Chrono	Seal, Litho		
Kimm-Oxf/ Hett-Sin	Spekk an	d Åre Fm	Bajocian/C	)xfo-Kimm	Spekk, Melke and Not Fm,		
Seismic database	e (2D/3D):	3D with 2D lines					
		Proba	bility of discovery	<b>1</b>			
Technical (oil+	gas case)	0.	.17	Prob for a	oil/gas case	90/10	
D. J. J. Ma. 70	S. 10. 20C	Reservoir (P1)	Trap (P2)	Charge (P3)	Retention (P4)		
Probability (f	raction).	0,9	0,6	0,4	0,8		
Paramet	res:	Low	Base	High			
Depth to top of prospect	(m)	1760	1765	1700	1		
Area of closure (km²)		13,3	17,4	21,2			
Reservoir thickness (m)		40	100	120			
HC column in prospect		30	35	40			
Gross rock vol. (10 <sup>9</sup> m <sup>3</sup> )		0,167	0,201	0,237			
Net / Gross (fraction)		0,25	0,5	0,75			
Porosity (fraction)		0,22	0,26	0.3			
Water Saturation (fracti-	on)	0,3	0,22	0,15			
Bg. (<1) Bo. (>1)	3g. (<1)		1.14	1,19			
GOR, free gas (Sm <sup>3</sup> /Sm <sup>3</sup> )		1,09	-	1,17			
GOR, oil (Sm <sup>3</sup> /Sm <sup>3</sup> )	- *	10	36	75			
Recovery factor, main p	hase	30	40	50	1		
Recovery factor, ass. ph		30	40	50			
Temperature, top res (de	eg C) :	74	Pressure, top res (l	oar) :	177		
For NPD use:							
Innrapp, av geolog:		Registrert:		Map OK:		Nr:	
	31		1	Dato:	7		

Fig. 4.1 NPD table 4. APA 2009 Prospect data.

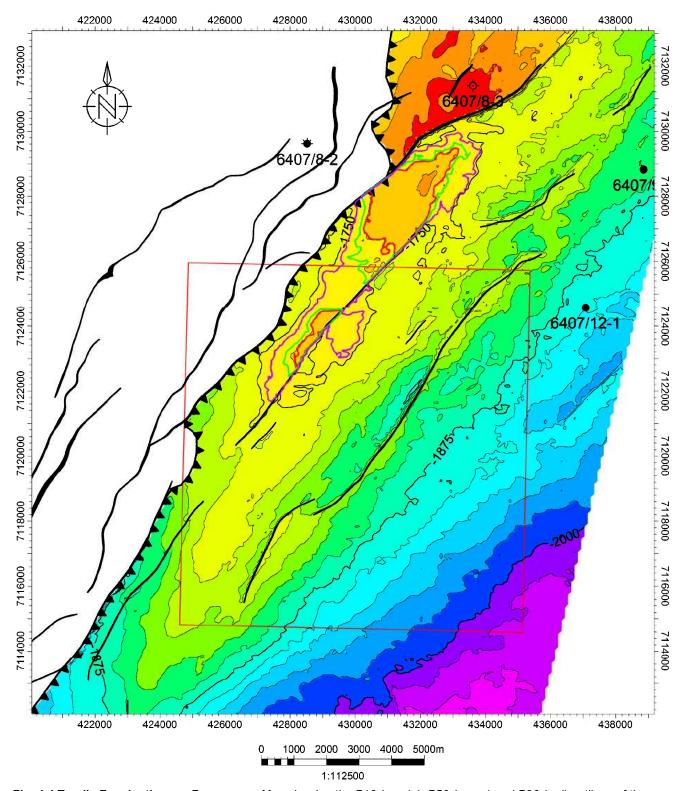


**Fig. 4.2 Top lle Fm. depth map. Upside case**. Closure on the Top lle Fm. level can be achieved assuming that the main fault is sealing in the northern part of the prospect. P10 (purple), P50 (green) and P90 (red) cases is marked on the map.



DI I	D.		D: 6	D /7 1	n ID ( ) I	h TDD 10	
Block		ect name	Discovery/	•	Prosp ID (or New!)	NPD approved?	
6407/11		lion Ile	Pros		NPD will insert data	NPD will insert data	
Play (name / new)	Structur	al element	Comp	any/ reported by / Re	ef. doc.	Year	
NPD will insert data	Vingleia F	ault Complex		LOTOS EPN		2011	
Oil/Gas case			Resources	IN PLACE			
Oil		Main phase			Ass. phase		
	Low	Base	High	Low	Base	High	
Oil 106 Sm³	4.21*	30.4*	109.8*		š.		
Gas 10 <sup>9</sup> Sm <sup>3</sup>	-	_	-	-	-	-	
,	Ï		Resources RE	COVERABLE			
		Main phase			Ass. phase		
	Low	Base	High	Low	Base	High	
Oil 10 <sup>6</sup> Sm <sup>3</sup>	1.64*	11.9*	44.1*			Ü	
Gas 10 <sup>9</sup> Sm <sup>3</sup>		5 <u>-</u>	- "	_	_	_	
Gus 10 Bill	Which fracti	les are used as:	Low:		High		
Town of two				(fram ta)	Reservoir Litt		
Type of trap		depth (m)	Reservoir Chro	ono (from - to)		10 (1rom - to)	
Structural	<b>2</b> 90		Aalenian		Ile Fm.		
Source Rock, Chrono		Rock, Litho	Seal, C		Seal, I		
Kimm-Oxf/Hett-Sin	Spekk and Åre Fm		Bajocian/Oxfo-Kimn	1	Spekk, Melke and N	ot Fm.	
Seismie databas	e (2D/3D):	3D with 2D lines					
		Pro	bability of discovery	7:			
Technical (oil+	gas case)	0.0	)7*	Prob for o	oil/gas case	90/10	
Probability (f	imation).	Reservoir (P1)	Trap (P2)	Charge (P3)	Retention (P4)		
Probability (1	raction).	0.9	0.25*	0.4	0.8		
Paramet	res:	Low	Base	High	Com	nents	
Depth to top of prospect	(-m)	1694*	1694*	1694*			
Area of closure (km²)		5.43*	19.3*	49.2*			
Reservoir thickness (m)		40	100	120	1		
HC column in prospect (	m)	31	56	81			
Gross rock vol. (109 m³)		0.054*	0.341*	1.182*			
Net / Gross (fraction) Porosity (fraction)		0.25	0.5 0.26	0.75			
Water Saturation (fraction	on)	0.22	0.22	0.3	1		
Bg. (<1)		-	-	-	1		
Bo. (>1)		1/1.09	1/1.14	1/1.19	1		
GOR, free gas (Sm³/Sm³	)	-	<u>-</u>	-	1		
GOR, oil (Sm³/Sm³)		10	36	75	]		
Recovery factor, main pl		0.3	0.4	0.5			
Recovery factor, ass. pha		0.3	0.4	0.5			
Temperature, top res (de	g C):	74	Pressure, top res (bar	):	177		
For NPD use: Innrapp. av geolog:	1	Registrert:		Map OK:		Nr:	
1 				•		INI:	
Dato:		Dato:		Dato:			

Fig. 4.3 NPD table 4. prospect data Snowlion Ile upside case. Updated parameters are marked with \*.



**Fig. 4.4 Top Ile Fm. depth map. Base case.** Map showing the P10 (purple), P50 (green) and P90 (red) outlines of the base case assuming faults to be non-sealing.

the prospect carries a risk of 0.17. When estimating potential volumes for the base case P90, P50 and P10 recoverable resources are 1.36, 3.4 and 7.75 million Sm³ of oil. Based on gross rock volume distribution potential volumes being inside the boundaries of PL556 have been estimated to 0.1-1.63 million Sm³ of oil.



#### **Minor Prospects and Leads**

In the Production License Application (APA2009) two leads were presented as the "Snowleopard Åre" and "Triassic Grey Beds Snowleopard". Both leads were downgraded as it is not possible to charge them with hydrocarbons from the Gimsan Basin, but rely on a local kitchen. Wells drilled on the high indicate that the Spekk Fm. is immature in this area.

The Snowlion Tilje lead were presented in 2009 as a small, tilted fault terrace located up-dip and to the northwest of Snowlion Ile prospect. The trap is formed by sub-crop of the southeasterly dipping Tilje Fm. beneath the northwesterly dipping Spekk Fm. but requires fault seal to the NW. Closure in the NE strike direction is provided by small rollover of the Top Tilje and to the SW by further sub-cropping under the Spekk Fm. The trap was believed to be charged from the adjacent Gimsan Basin and resources in place were estimated to be between 10-27 million m³ of oil. In continuation of the award the Snowlion Tilje lead was matured into a small prospect as the sealing capacity of the faults was downgraded and finally only 4-way structural dip closure was taken into account when estimating volumes (Fig. 4.5). P90, Mean and P10 estimates of recoverable volumes are 0.22, 0.87 and 1.82 million m³ of oil with a probability of success of 0.20.

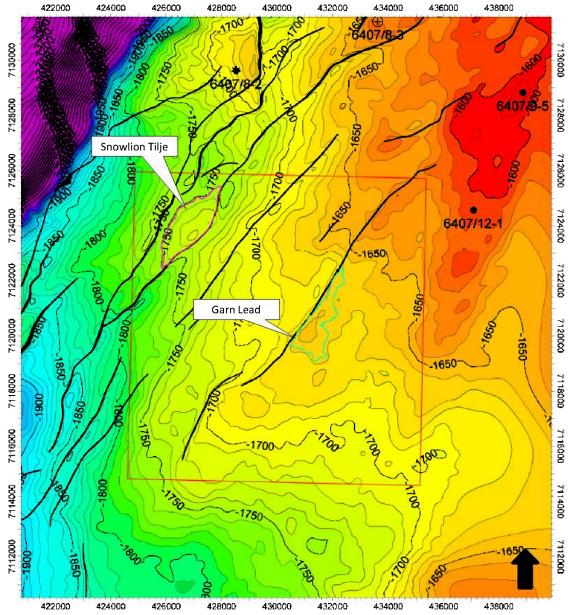


Fig. 4.5 BCU depth map with Snowlion Tilje and Garn lead outlined.



There also exist a potential at Garn/Rogn level as seen on Fig. 4.5. The structure is a low relief 4-way closure at BCU level with potential recoverable volumes estimated to be between 0.19 and 0.45 million m³ of oil and a probability of success of 0.17.

A summary of potential recoverable volumes and risks related to the different prospects and leads is presented in Table 6.2.



## 5 Technical Evaluations

The evaluation presented here is a summary of what was included in the APA 2009 application as no further work have been done on this subject.

The base case for a Snowlion development is a sub-sea tie-back to the Draugen platform (see Fig. 5.1). It is assumed developed with 3 production wells and 2 water injectors arranged on one template. Furthermore it is assumed that one production flow line, one water injection line, one gas lift line and one umbilical for control, power and utilities supply are needed.



Fig. 5.1 Snowlion tie-back to Draugen

The distance is approximately 20 km and should give the optimal commercial solution. This distance is well within current experience for sub-sea tie-backs and is considered technically feasible based on typical flow assurance problems. A sub-sea tie-back is the option that would achieve earliest first oil in the event of a development. A sub-sea tie-back should give improved recovery in the late life compared with an FPSO due to lower operating costs. At this water depth, it is unlikely that a wellhead platform will be more economical for a 5 well development, although this would need to be be reviewed based on an assessment of well intervention frequencies. Well intervention on sub-sea wells to improve recovery is more expensive than a wellhead platform. However, with the introduction of additional intervention vessels to the NCS, more interventions will be possible in sub-sea wells and this should ultimately improve the recovery from the field.

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## 6 Conclusions

On the basis of the evaluations performed, and the updated resource and risk assessments of the Snowlion Ile rospect, the following can be observed:

- Three stratigraphic intervals of the Middle and Upper Jurassic have been identified having potential for trapping and retaining hydrocarbons
- 2. The risk related to each interval can be summarized as follows:

Prospect	P1-Reservoir	P2-Trap	P3-Charge	P4-Retention	Total
Snowlion Ile-base case	0.9	0.6	0.4	0.8	0.17
Snowlion Ile-upside case	0.9	0.25	0.4	0.8	0.07
Snowlion Tilje	0.9	0.7	0.4	0.8	0.20
Garn/Rogn Lead	0.9	0.6	0.4	0.8	0.17

Table 6.1: Table showing risk parameters related to each of the prospects within PL556.

The Snowlion IIe base case is based on the assumption that faults are non-sealing. The Snowlion IIe upside case is based on the assumption that the main fault to the west is providing horizontal seal, hence the high risk assigned to P2-Trap.

The resource potential for each prospect can be summarized as follows:

Prospect	Low	Base	High	Cos
Snowlion Ile-base case	1.36	3.40 (0.58)	7.75	0.17
-within PL556	0.10	0.35	1.63	0.17
Snowlion Ile-upside case	1.64	11.9 (0.8)	43.1	0.07
-within PL556	0.10	3.90	15.2	0.07
Snowlion Tilje	0.22	0.65	1.82	0.20
Garn/Rogn Lead	0.19	0.40	0.78	0.17

Table 6.2: Table showing un-risked recoverable resources (mmSm³ oil) and CoS for the different prospects and lead in PL556 (risked volumes in brackets).

The risked volume potential is significantly below the economic threshold. The upside estimate for the Snowlion lle prospect is significant taking the whole prospect into consideration, however only a minor part is located within the license area of PL556-the majority of the prospect is located within the licensed area to the north (PL348). In addition the risk related to the upside case is high.

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On the basis of the estimated resource potential and assessment of the risk related to these volumes it is not recommended to enter the second phase of the exploration period and comit to the drilling of an exploration well on the Snowlion IIe prospective intervals. Hence the PL556 partnership seeks to relinquish the license.

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