

# PL 899 – Licence status report



### Summary

The main driver for applying for PL899 acreage in the APA 2016 application was to follow up on the oil leg discovered in the 6706/12-2 (Snefrid Nord) well, drilled in 2015. The new conceptual idea was that an oil prone source was located in the Hel Graben, with Hafr and Hornklove (Southwest and Northeast segments) favourable on the migration route South and out of the Hel Graben. Work programme was new modern broadband seismic (better structural image in fault shadow over Hafr and Hornklove), and general G&G work including Petroleum System Analysis (PSA) work. The new PGS16004 broadband seismic has improved the seismic image over the Hafr structure, but there are still no observations supporting presence of hydrocarbons. A pure oil case or a multiphase case with a gas cap within a minimal fault shadow are the most likely success cases. However, the new mean volume estimation for oil is below the minimum commercial threshold volume (18MSm<sup>3</sup>) calculated in the 2016 application. The PSA work performed after the award has not increased the chance of oil in Hafr or Hornklove. Therefore, the combination of high risk and low oil volume potential in the structures do not support any exploration drilling in PL899.



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# 1 Licence history

Licence:	PL899	
Awarded:	10.02.2017	
License blocks:	6706/12 & 6707/10	
License period:	Expires 10.02.2024 Initial period: 7 years	
<u>License group:</u>	Equinor Energy AS OMV (Norge AS) Petoro AS	60% (Operator) 20% 20%
License area:	<b>371.691</b> km <sup>2</sup>	
Work program:	Acquire 3D seismic – fulfi	lled. Decision to drill/drop, deadline February 10 <sup>th,</sup> 2019.
<u>Meetings held:</u>		
04.2 5.2017	EC/MC startup meeting	
11.23.2017	EC/MC meeting (2)	
10.23.2018	EC work meeting	
11.23.2018	EC/MC meeting (3)	
Work performed:		

2017:	Licence start-up
2017:	Prospect mapping / seismic interpretation
2018:	Prospect mapping / evaluation
2018:	Decision made not to drill within the license

#### Reason for surrender:

None of the evaluated prospects within PL899 are regarded as drillable (Figure 1.1)

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Figure 1.1: PL899 license map, showing the location in the Norwegian sea North of the Aasta Hansteen field. The evaluated prospects Hafr and Hornklove (both in the Kvitnos Fm) are shown in yellow outline.

### 2 Database overviews

#### 2.1 Seismic data

The 3D seismic data used for interpretation of the Hafr and Hornklove prospects was PGS16004. An overview of the seismic data included in the common data base is shown in figure 2.1. A list of the seismic database is also provided in table 2.1.



Doc. No. AU-EXP NUKE NWS-00123 Valid from: 17.04.2019 Rev. no.



Figure 2.1: Map of common seismic and well database for PL899.



2D/3D Seismic Survey NPDID Year Quality Status ST9603 component survey for ST11M09 3830 1996 Fair Public 3D BPN9601 component survey for ST11M09 3755 3D 1996 Fair Public 2011 ST11M09 NA 3D Good Public PC10NO01 7240 3D 2010 Good Public PGS16004 8325 3D 2016 Very Good Market available 2765 2D 1985 Fair Public NPD-VØRB-85 NPD-VØRB-86 2866 2D 1986 Fair Public 3007 Fair Public NPD-VØRB-87 2D 1987 3145 2D 1988 Fair Public NPD-VØRB-88 NPD-VØRB-89 3263 2D 1989 Fair Public NPD-VØRB-90 3338 2D 1990 Fair Public MNR04 4252 2D 2004 Fair Public MNR06 4364 2D 2006 Fair Public 7001 2D Fair Public MNR09 2009

Table 2.1: List of seismic data in common seismic database for PL899.

#### 2.2 Well data

A list of all wells in the common well database for PL899 is listed in table 2.2

Wells	Year	Drilling operator	Prospect	NPDID	License	Status	Age at TD	Formation (TD)
6604/2-1	2011	BG Norge AS	Gullris	6568	PL522	Dry	L. Cretaceous	Springar
6605/1-1	2009	StatoilHydro ASA	Obelix	5979	PL328	Dry	L. Cretaceous	Nise
6607/2-1	2007	ENI Norge AS	Cygnus	5471	PL329	Dry	L. Cretaceous	Springar
6704/12-1	1999	Saga Petroleum ASA	Gjallar	3759	PL215	Dry	L. Cretaceous	Nise
6705/10-1	2009	StatoilHydro ASA	Asterix	6044	PL327B	Gas	E. Cretaceous	Springar
6706/6-1	2003	Esso E&P Norway AS	Hvitveis	4705	PL264	Gas	Paleocene	No formal name
6706/11-1	1998	Det Norske Stats Oljeselskap A.S.	Ægir	3202	PL217	Dry	L. Cretaceous	Lange
6706/12-1	2008	StatoilHydro ASA	Snefrid Sør	5867	PL218	Gas	L. Cretaceous	Kvitnos
6706/12-2	2015	Statoil Petroleum AS	Snefrid Nord	7651	PL218	Gas/Oil	L. Cretaceous	Nise
6706/12-3	2015	Statoil	Roald Rygg	7666	PL602	Gas	L. Cretaceous	Kvitnos
6707/10-1	1997	BP Norway Lim. U.A.	Luva	3075	PL218	Gas	L. Cretaceous	Kvitnos
6707/10-2S	2008	StatoilHydro ASA	Haklang	5918	PL218	Gas	L Cretaceous	Nise
6707/10-2A	2008	StatoilHydro ASA	Haklang	5931	PL218	Gas	L Cretaceous	Kvitnos
6707/10-3S	2014	Centrica	lvory	7550	PL528B	Gas	E Cretaceous	Lange

Table 2.2: List of all wells in common well database in PL899.



### 3 Results of geochemical, geological and geophysical studies

The regional geological framework for PL899 area is well described in the application for blocks 6706/12 and 6707/10 (APA2016).

A comprehensive PSA study, including geochemical re-analysis, of Late Cretaceous to Paleocene rock and fluid samples have been performed during the regional work for the 24<sup>th</sup> concession round. The concept of a Paleogene oil prone source which could be time equivalent to the Paleocene-Eocene Temperature Maximum (PETM-event) was somewhat supported by the identification of an AVO class IV anomaly on a regional dataset within Paleocene strata in the western Møre Basin. However, no indication for the presence of such a source rock have been found on new seismic within the PL899 area or in the newly drilled wells in adjacent areas (6705/7-1 and 6706/6-2 S) at time of relinquishment. Thus, the probability of source rock presence and migration could not be increased during licence work.

New geological/geophysical studies consist of interpretation on new 3D seismic data (PGS16004). The new seismic was acquired through purchase of a selection of the 3D multiclient broad band dataset provided by PGS (Figure 2.1). New interpretation work includes seismic horizon interpretation, quantitative geophysical analysis (amplitude analysis), and structural mapping (fault mapping) of Hafr and Hornklove prospects (Figure 3.1a). Data quality related to the fault shadow zone over the crest of Hafr was the main motivation for acquiring new data over PL899. ST11M09 data quality was generally good, but the main bounding fault for Hafr was creating a relatively large shadow zone (at Kvitnos level) in which a HCWC could be hidden (Figure 3.1b).



Figure 3.1a: Seismic tie line from Haklang (Kvitnos) gas discovery over to Hornklove and Hafr shown on the new PGS data. Interpretations shown are; Top\_Kvitnos (Santonian), Top\_Nise (Campanian), and the Base Tertiary Unconformity. Also shown is the interpretation of the main bounding fault for Hafr (blue).





Figure 3.1b: Same seismic tie line over Hafr and Hornklove, but with data from APA2016 (ST11M09).

The new seismic dataset has improved the interpretation over Hafr and Hornklove. But for Hafr, the fault shadow has only been slightly reduced compared with the ST11M09 data (Figure 3.2).



Figure 3.2: Hafr Kvitnos depth map, with a slightly smaller fault shadow as a result of the new interpretation.



The new interpretation has given higher confidence in the graben area in between the fault blocks of the prospects. Smaller down faulted blocks at Nise level are now more clearly seen juxtaposed to the Kvitnos reservoir in the hangingwall of Hornklove SW segment. This gives a higher risk for lateral leakage along Hornklove SW than for Hafr.

The understanding of the prospect geometry is not significantly changed, but a smaller area affected by fault shadow, and a slightly steeper structural topography in the new interpretation of Hafr results in smaller hydrocarbon (HC) columns and corresponding volumes than in the APA2016 evaluation. Due to differences in velocity model (ST11M09 vs PGS16004), the interpreted depth (TVD MSL) of the apex of Hafr differs (-100m) from the APA evaluation. Still, there are no observations supporting presence of HC neither in Hafr nor in Hornklove NE and SW.

### 4 Prospect update report

The PL899 area is located between the Nyk High and the southern margin of the Hel Graben immediately North of the Aasta Hansteen gas field. Both prospects are entirely within the licensed area, but Hafr has been treated as the main prospect as it is better positioned for receiving oil sourced from the Hel Graben. Hornklove SW and Hornklove NE segments are partially positioned in a possible migration shadow of Hafr and therefore carry a higher migration risk. Hornklove SW and Ne segments have still been evaluated since vertical migration of gas is possible.

The Kvitnos reservoir is interpreted to be deep marine basin floor fan deposits of Santonian age sourced from East Greenland. These turbiditic sandstones are proven as working reservoirs in the nearby Luva, Snefrid-Sør, Haklang, Roald Rygg and Ivory wells, and expected gross thickness is ca 180m. The 6707/10-2 (Haklang), and the 6707/10-3S (Ivory) wells encountered gas in Kvitnos, hence the play risk for the area is set to (**P-play = 1.0**). The probability for reservoir is: (**P-res = 0.8**) for both prospects. The main uncertainty associated with reservoir is the large permeability range (50mD-500mD). The Kvitnos Fm is capped by a thick package of lower Nise Fm shales, which act as top seal for both prospects.

Hafr prospect (Figure 4.1) is characterized as a rotated, fault-bounded 3-way structural closure with a structural spill point towards NE (Ivory) at 3545m TVD MSL. Within the main structural closure there is an eastern sub-closure (local apex at 3295m TVD MSL) that is separated from a western sub-closure (apex at 3132m TVD MSL) by a saddle point at 3470m TVD MSL. The main bounding fault to the North has a large throw (~1.5-2.0km) at the north-eastern end, but poor data quality caused by volcanic intrusions inhibits measurement of the throw further SW on the structure. It is uncertain what stratigraphy is juxtaposed where in the hanging-wall. Consequently, this poses a risk to the trap seal. Ooze in the overburden of the SW flank of Hafr is still causing poorer data quality locally, making it difficult to define this part of the prospect in detail. Furthermore, it is uncertainty in the Kvitnos Fm. interpretation over the spill point towards lvory. This is caused by low S/N ratio due to heavily faulted (collapsed) blocks in Nise Fm. above the reservoir level. Within Equinor probability of: P-trap = P(geom) \* P(seal) = [0.9 \* 0.6] = 0.54 for the prospect. A moderate charge risk (P-charge = 0.7) is related to migration of HC into the Hafr prospect. The risk is mainly related to difficulty in mapping migration routes underneath intrusive sills in the hangingwall of the main fault (Figure 3.1a, and Figure 4.2).





Figure 4.1: Depth map of Hafr prospect, with apex and spill point to Ivory area (white contour). Fault polygons over the structure are not interpreted to be segmenting the prospect. Main fault to the North is separating the prospect from the Hel Graben.

A gas-water contact (GWC) or gas-oil contact (GOC) in Hafr should be detectable outside the fault shadow (APA2016). No DHI (strong amplitude response, conformance with structure or flat event) is observed over Hafr where the data quality is good, but a GWC or GOC could still hide inside the shadow zone. Hence, the fault shadow affects the distribution of HC column in the volume assessment of Hafr. Figure 4.2 shows the results of the quantitative amplitude analysis for Hafr. The shallowest contour not affected by the fault shadow is at 3270m, leaving only a small area where the DHI could hide (red outline in the map).



Figure 4.2: Hafr Kvitnos RMS amplitude map showing the effect of the fault shadow along the crest of Hafr. On the right-hand side: a dip line from the location where the shallowest contour <u>not affected</u> by fault shadow exist (red contour at 3270m). This contour is much shallower than the structural spill contour at 3545m (white outline in the map).



**Hornklove** (Figure 4.3) is structurally and stratigraphically similar to Hafr. But in the new interpretation the structure is separated into a NE and a SW segment which have different spill points. Hornklove SW will spill at 3464m (TVD MSL) to the SW (in the direction of Snefrid Nord). Below this depth, seal is dependent on a fault between the SW segment and Snefrid Nord. A Nise Fm. sandstone block is juxtaposed in the hanging-wall of the main fault to the North of Hornklove SW segment (Figure 4a). Hornklove NE spills to Hornklove SW through a saddle point at 3600m (TVD MSL). The saddle point to the NE is deeper (3690m). No Nise Fm. sandstones are interpreted in the hanging-wall of the NE segment (Figure 4b). For these reasons, **P(seal)** is different for the two segments: **0.4** for SW-, and **0.6** for NE-segment. The probability for vertical charge of HC's is similar for Hafr and Hornklove prospects, but Hornklove is situated in a less favourable position for lateral migration of HC's from Hel Graben. The **P(charge)** is therefore low: **0.6** for SW-, and **0.5** for NE-segment.



Figure 4.3: Structural depth map over Hornklove NE and SW segment with spill mechanics.

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Nise block Nise block Nise da) Dip line Hornklove SW

Figure 4a and 4b: NW-SE dip lines over Hornklove SW (4a) and Hornklove NE (4b) segments.

The data quality over Hornklove is generally better than over Hafr (exception is southern half of Hornklove SW, where amplitudes are dimmed due to ooze in the overburden). This is reflected in the quantitative geophysical analysis for Hornklove (Figure 5). The shallowest contour on the Hornklove NE segment not affected by the fault shadow is 3310m, and for Hornklove SW the contour is 3345m. This means that only a small area around the apex points of the segments is in the fault shadow with possibility for disguising any GWC or GOC (red outlines).



Figure 5: Results of RMS amplitude analysis over Hornklove where only small parts at the crest of the structure (red outline) is covered by the fault shadow from the main bounding fault to the North.



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Hafr Risking: Initial probability of discovery for Hafr is 30% (P(g) = 0.3). No DHI modification has been used since there is still a chance that the GWC could hide in the fault shadow, which is only slightly reduced since the application. The chances for oil have been lowered since the application (no new indication of an oil generating source in Hel Graben), and this affects the phase probability split in the multi scenario analysis case selected in the evaluation of Hafr. The split is weighted 30% on a "gas over oil" case, and 70% on a pure gas case. Technical probability fraction is 0,08 for the pure oil case, 0,71 for the pure gas case and 0,21 for the oil & gas case. This results in a total probability of P(oil, only)=(0.08X0.3)=0.024, P(gas, only)=(0.71x0.3)=0.213 and P(oil & gas)=(0.21x0.3)=0.063. Volumes and prospect data for Hafr (pure gas-, pure oil- and oil+gas case) are found in Table 4.1, 4.2 and 4.3 below.

Hornklove NE & SW Risking: Hornklove SW and NE have been assessed separately in individual segment analysis using multiphase fluid modelling as input. Since area affected by fault shadow is very small, and since no DHI is seen in any part of the structure, a DHI downgrade assessment has been applied to both segments. An initial risk assessment probability for Hornklove NE of 24% is reduced to 16% after the downgrade. Correspondingly, the probability of success for the Hornklove SW segment is reduced from 19%, to 12%. Phase split probabilities for Hornklove NE and SW are set to 0.6 for gas, 0.1 for oil and 0.3 for oil & gas. This results in total probability of P(oil, only)=(0.16x0.19)=0.03, P(gas, only)=(0.16x0.47)=0.075 and P(oil & gas)=(0.16x0.34)=0.054 for the Hornklove NE segment. In Hornklove SW the corresponding probabilities are: P(oil only)=0.023, P(gas, only)=0.057, and P(oil & gas)=0.04. Volumes and prospect data for Hornklove NE and SW (pure gas-, pure oil- and oil+gas case) are found in Table 4.4 - 4.9 below.



### Table 4.1: Prospect data – Hafr, gas case

Block	6706/10, 6707/12	Prospect name	Hafr	Discovery/Prosp/Lead	prospect	Prosp ID (or New!)	NPD will insert value	NPD approved (Y/N)	No
Play name	NPD will insert value	New Play (Y/N)	No	Outside play (Y/N)	No				
Dil, Gas or O&G case:	Gas	Reported by company	Equinor ASA	Reference document				Assessment year	2018
his is case no.:	1 of 3	Structural element	Vøring Basin	Type of trap	Structural	Water depth [m MSL] (>0)	1400	Seismic database (2D/3D)	3D
Resources IN PLACE and RECOVERABLE		Main phase				Associated phase			
olumes, this case		Low (P90)	Base, Mode	Base, Mean	High (P10)	Low (P90)	Base, Mode	Base, Mean	High (P10)
	Oil [10 <sup>8</sup> Sm <sup>3</sup> ] (>0.00)					0,02	0,02	0,14	0,26
- hadda rasonindas	Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)	0,86	0,93	6,00	11,40				
tecoverable resources	Oil [10° Sm <sup>3</sup> ] (>0.00) Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)	0 50	0 60	2 22	R 70				
Reservoir Chrono (from)	Santonian/Campanian	Reservoir litho (from)	Kvitnos fm	Source Rock, chrono primary	Unknown	Source Rock, litho primary	Unknown	Seal, Chrono	Campanian
Reservoir Chrono (to)	Santonian/Campanian	Reservoir litho (to)	Kvitnos fm	Source Rock, chrono secondary	Unknown	Source Rock, litho secondary	Unknown	Seal, Litho	Nise fm
robability [fraction]									
echnical (oil + gas + oil & gas case ) (0.00-1.00)	05,0	Oil case (0.00-1.00)	0,08	Gas case (0.00-1.00)	0,71	Oil & Gas case (0.00-1.00)	0,21		
leservoir (P1) (0.00-1.00)	0,80	Trap (P2) (0.00-1.00)	0,54	Charge (P3) (0.00-1.00)	0,70	Retention (P4) (0.00-1.00)	1,00		
barametres:	Low (P90)	Base	High (P10)	Comments					
Depth to top of prospect [m MSL] (> 0)	3132	3132	313						
Area of closure [km <sup>2</sup> ] (> 0.0)	26,3	31,1	35	, e					
Reservoir thickness [m] (> 0)	159	182	20						
IC column in prospect [m] (> 0)	96	146	22						
bross rock vol. [10 <sup>9</sup> m <sup>3</sup> ] (> 0.000)	0,042	0,220	0,68						
let / Gross [fraction] (0.00-1.00)	0,60	0,66	0,7						
orosity [fraction] (0.00-1.00)	0,17	0,18	0,21	0					
Permeability [mD] (> 0.0)	50,0	200,0	500,1						
Vater Saturation [fraction] (0.00-1.00)	0,32	0,35	0,3						
3g [Rm3/Sm3] (< 1.0000)	0,0034	0,0036	0,003						
/Bo [Sm3/Rm3] (< 1.00)									
30R, free gas [Sm <sup>3</sup> /Sm <sup>3</sup> ] (> 0)	31522	43478	7004						
30R, oil [Sm <sup>3</sup> /Sm <sup>3</sup> ] (> 0)									
Recov. factor, oil main phase [fraction] (0.00-1.00)									
lecov. factor, gas ass. phase [fraction] (0.00-1.00)									
lecov. factor, gas main phase [fraction] (0.00-1.00)	0,50	0,60	0,71						
lecov. factor, liquid ass. phase [fraction] (0.00-1.00)	0,30	0,35	0,41	For NPD use:					
emperature, top res [°C] (>0)	76			Innrapp. av geolog-init:	NPD will insert value	Registrert - init:	NPD will insert value	Kart oppdatert	NPD will insert value
ressure, top res [bar] (>0)	350			Dato:	NPD will insert value	Registrert Dato:	NPD will insert value	Kart dato	NPD will insert value
ut off criteria for N/G calculation	1.Vshale<0.4	2.Porosity>0.1	3					Kart nr	NPD will insert value

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#### Table 4.2: Prospect data – Hafr, oil case

Base and ECOVERATION     Bender Fanne     Base and Fanne     Bas	able 5: Prospect data (Enclose map)									
Bit on control     Finance (100 value value)     Iole value value     Iole value v	Block	6706/10, 6707/12	Prospect name	Hafr	Discovery/Prosp/Lead	prospect	Prosp ID (or New!)	NPD will insert value	NPD approved (Y/N)	No
Disk aus notice     O II     Bagening by Campa Caluer AAA     Balening Caluer AAA     Structure III     Visco France     Structure III     Visco France     Structure III     Visco France     Structure III     Structure IIII     Structure IIIII     Structure IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Play name	NPD will insert value	New Play (Y/N)	No	Outside play (Y/N)	No				
Bis Gase No.     Z (3     Structural eternet.     Viron Dian     Type (Trig)     Structural eternet.     Structural eternet. <thstructural eternet.<="" th="">     Structural eternet.</thstructural>	il, Gas or O&G case:	Oil	Reported by company	Equinor ASA	Reference document				Assessment year	2018
Seavence IN PLAE and RECOVERANCE     Name phase     Name phase <td>his is case no .:</td> <td>2 of 3</td> <td>Structural element</td> <td>Varing Basin</td> <td>Type of trap</td> <td>Structural</td> <td>Water depth [m MSL] (&gt;0)</td> <td>1400</td> <td>Seismic database (2D/3D)</td> <td>3D</td>	his is case no .:	2 of 3	Structural element	Varing Basin	Type of trap	Structural	Water depth [m MSL] (>0)	1400	Seismic database (2D/3D)	3D
Guerray, Missage     Conv. (PSD)     Case, Main     Main, PSD, Main, P	esources IN PLACE and RECOVERABLE		Main phase				Associated phase			
place resources     Guito_Smit_Jocobi (smit_Jocobii (smit_Jocobii (smit_Jocobi (smit_Jocobii (smit_Jocobi (smit_	olumes, this case		Low (P90)	Base, Mode	Base, Mean	High (P10)	Low (P90)	Base, Mode	Base, Mean	High (P10)
consister assurces     Contract, and period     Contract, a	place resources	Oil [10 <sup>6</sup> Sm <sup>3</sup> ] (>0.00) Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)	2,58	2,22	31,70	92,30	0.47	0.56	5.90	16.70
Selectic Chrone (fram)     Santiauc/Langanian     Reservort this (rom)     Varias frag     Salt (brone fram)     Varias frag	ecoverable resources	Oil [10 <sup>6</sup> Sm <sup>3</sup> ] (>0.00) Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)	0,90	86'0	11,00	32,10	0,16	0,19	2,00	5,79
Selency Chrono (b)     Saltrona Campanian     Reservoir (bito)     Saltrona Scondary     Unixovan     Saltrona Scondary     Unixovan     Saltrona     Reservoir (bito)     Saltrona     Saltrona     Saltrona     Saltrona     Reservoir (bito)     Saltrona     Saltron	eservoir Chrono (from)	Santonian/Campanian	Reservoir litho (from)	Kvitnos fm	Source Rock, chrono primary	Unknown	Source Rock, litho primary	Unknown	Seal, Chrono	Campanian
OpenAllity Transiend Incrince (21) (0.01-10)     OpenAllity (1.00-10)     OpenAllity (1.00-10) <td>eservoir Chrono (to)</td> <td>Santonian/Campanian</td> <td>Reservoir litho (to)</td> <td>Kvitnos fm</td> <td>Source Rock, chrono secondary</td> <td>Unknown</td> <td>Source Rock, litho secondary</td> <td>Unknown</td> <td>Seal, Litho</td> <td>Nise fm</td>	eservoir Chrono (to)	Santonian/Campanian	Reservoir litho (to)	Kvitnos fm	Source Rock, chrono secondary	Unknown	Source Rock, litho secondary	Unknown	Seal, Litho	Nise fm
Contract (10)     0.00     Orace (10,00,100)     0.01     Gas case (00,0,100)     0.71     Orace (10,0,100)     0.21       ammeters     to to prospect [m(S1) 6 0)     Tage (22, (00,100)     0.71     Orace (10,0,100)     0.21       assor thrices [m( > 0)     31,33	robability [fraction]									
sametex:     Low (Pg0)     Tag (P2) (0.0.0.100)     0.47     Retention (P4) (0.0.0.100)     1.00       esh to top of prospect [m](> 0)     3132     3132     3132     sex of closure [lm](> 0)     2.33     3132     2.33     2.34     2.34     2.34     2.34     2.34     2.35     2.35     2.35     2.35     2.35     2.35     2.35     2.35     2.35     2.35     2.35     2.35     2.35	echnical (oil + gas + oil & gas case ) (0.00-1.00)	0,30	Oil case (0.00-1.00)	0,08	Gas case (0.00-1.00)	0,71	Oil & Gas case (0.00-1.00)	0,21		
totop of prospect [m1] < 0.0     Date     High (P10)     Comments       sent of closure [m1] < 0.0	eservoir (P1) (0.00-1.00)	0,80	Trap (P2) (0.00-1.00)	0,54	Charge (P3) (0.00-1.00)	0,70	Retention (P4) (0.00-1.00)	1,00		
each bug of prospect [m] (> 0)     313     313       each claure [m] (> 0)     103     311     359       each claure [m] (> 0)     103     311     359       claure [m] (> 0)     103     310     359       coulum [mospect [m] (> 0)     100     100     310       cos colum [mospect [m] (> 0)     0.00     0.00     310       cos colum [mospect [m] (> 0)     0.01     100     310       cos colum [mospect [m] (> 0)     0.01     0.00     0.00       cos colum [mospect [m] (> 0)     0.01     0.02     0.00       cos colum [mospect [m] (> 0)     0.02     0.03     0.00       cos colum [mospect [m] (> 0)     0.03     0.02     0.00       cos colum [mospect [m] (> 0)     0.03     0.02     0.02       cos colum [mospect [m] (> 0)     0.03     0.02     0.02       cos colum [mospect [m] (> 0)     0.03     0.03     0.02       cos colum [mospect [m] (> 0)     0.03     0.03     0.43       cos colum [mospect [m] (> 0)     0.23     0.43     0.43	arametres:	Low (P90)	Base	High (P10)	Comments					
cent of cosume [m1] (> 0.0)     2.3.     3.1.1     3.5.9       servor trickness [m1] (> 0)     101     113     3.1.0       C column in prospect [m1] (> 0)     101     113     3.1.0       cross rock vol (10 <sup>0</sup> m1] (> 0.000)     0.01     0.01     0.01       er / cross [fraction] (0.00-1.00)     0.01     0.02     0.02       er / cross [fraction] (0.00-1.00)     0.01     0.02     0.03       er / cross [fraction] (0.00-1.00)     0.01     0.02     0.03       er / cross [fraction] (0.00-1.00)     0.02     0.03     0.01       ec / cror, gas as phase [fraction] (0.00-1.00)     0.23     0.35     0.43       ec / cror, gas as phase [fraction] (0.00-1.00)     0.25     0.35     0.45       ec / cror, gas as phase [fraction] (0.00-1.00)     0.25     0.35     0.45       ec / cror, gas as phase [fraction] (0.00-1.00)     0.25     0.35 </td <td>epth to top of prospect [m MSL] (&gt; 0)</td> <td>3132</td> <td>3132</td> <td>3132</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	epth to top of prospect [m MSL] (> 0)	3132	3132	3132						
Column in prospective (in) (     151     162     206       Column in prospective (in) (     0.001     101     101       roas rock vol. (10° m²) (     0.000     0.001     0.001       roas rock vol. (10° m²) (     0.000     0.001     0.001       roas rock vol. (10° m²) (     0.000     0.001     0.001       roas rock vol. (10° m²) (     0.001     0.001     0.001       roas rock vol. (10° m²) (     0.001     0.001     0.001       rock rock rock rock rock (10° 0.001.001     0.001     0.002     0.001       rock rock rock rock rock (10° 0.001.001     0.002     0.003     0.001       rock rock rock rock (10° 0.001.001     0.025     0.035     0.041       rock rock rock (10° 0.001.001     0.025     0.035     0.041       rock rock rock (10° 0.001.001	rea of closure [km <sup>2</sup> ] (> 0.0)	26,3	31,1	35,9						
Column prospect (n) (0 0)     (0	eservoir thickness [m] (> 0)	159	182	206						
er/ Gross Fraction (0.00-1.00)     0,004     0,33     1,67       er/ Gross Fraction (0.00-1.00)     0,17     0,18     0,21       ermebility (nC) (> 0.01     0,17     0,18     0,20       ermebility (nC) (> 0.01     0,17     0,18     0,21       ermebility (nC) (> 0.01     0,25     0,21     0,20       grans/Sm3 (< 1.0000)	C column in prospect [m] (> 0)	101	181	310						
et / Cross/Traction (0.00-1.00)   0,60   0,71     onsky (fraction (0.00-1.00)   0,01   0,10     atter Saturation (1.00-1.00)   0,02   0,00     atter Saturation (1.00-1.00)   0,02   0,00     gRin2/Sm2( < 1.000)	ross rock vol. [10 <sup>9</sup> m <sup>3</sup> ] (> 0.000)	0,004	0,333	1,667						
emeability (mD) ( 00-100)     0.17     0.18     0.20       emeability (mD) ( 00-100)     0.33     0.40       g [Rm3/Sm3] ( - 1.000)     0.25     0.33     0.40       g [Rm3/Sm3] ( - 1.000)     0.25     0.33     0.40       g [Rm3/Sm3] ( - 1.000)     0.25     0.33     0.40       G [Sm3/Rm3] ( - 1.000)     0.25     0.33     0.40       CR, regas [Sm3/Sm3] ( - 0)     0.69     0.69     0.69       CR, regas [Sm3/Sm3] ( - 0)     0.25     0.35     0.45       cev, factor, oli mani phase [fraction] ( 0.0-1.00)     0.25     0.35     0.45       cev, factor, oli mani phase [fraction] ( 0.0-1.00)     0.25     0.35     0.45       cev, factor, oli mani phase [fraction] ( 0.0-1.00)     0.25     0.35     0.45       cev, factor, gas main phase [fraction] ( 0.0-1.00)     0.25     0.35     0.45       cev, factor, gas main phase [fraction] ( 0.0-1.00)     0.25     0.35     0.45       cev, factor, gas main phase [fraction] ( 0.0-1.00)     0.25     0.45     MPD willinervisite       cev, factor, factor, factor [0.00-1.00]     0.25     0.45 <t< td=""><td>et / Gross [fraction] (0.00-1.00)</td><td>0,60</td><td>0,66</td><td>0,71</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	et / Gross [fraction] (0.00-1.00)	0,60	0,66	0,71						
Second     Second     Second     Second       rater Saturation (Fraction) (0.0-1.00)     0.3     50.0       rater Saturation (Sing) (-1.00)     0.3     0.3       rater Saturation (Sing) (-1.00)     0.3     0.3       rater Saturation (Sing) (-1.00)     0.61     0.69       rater Saturation (Sing) (-0.1.00)     0.61     0.69       rater Saturation (Sing) (-0.1.00)     0.61     0.65       rater Saturation (Sing) (-0.1.00)     1.25     0.35       rater Saturation (Sing) (-0.0-1.00)     0.25     0.35       rater Saturation (Sing) (-0.0-1.00)     0.25     0.45       rater (Sing) rater (Sing) (-0.0-1.00)     0.25     0.45       rater (Sing) rater (Sing) rater (Sing) (-0.0-1.00)     0.25     0.45       rater (Sing) rater (Sing) rater (Sing) rater (Sing) (-0.0-1.00)     0.25     0.45       rater (Sing) rater (Sin	prosity [fraction] (0.00-1.00)	0,17	0,18	0,20						
(aler Saturation (fraction) (0.00-1.00)   0,25   0,33   0,40     (B) [Shu7km3] (< 1.000)	ermeability [mD] (> 0.0)	50,0	200,0	500,0						
GR/n2/Sm2] (< 1.000)     0.61     0.69       B0 Sm2/Am2] (< 1.000)	/ater Saturation [fraction] (0.00-1.00)	0,25	0,33	0,40						
Gel (Bn/Sm <sup>2</sup> )     (1.0)     O.61     O.63     O.81       OR, free gel (Sm <sup>2</sup> /Sm <sup>2</sup> ) (- 0)     1.25     1.67     2.50       ecov. factor, oli man phase [fraction] (0.00-1.00)     0.25     0.35     0.45       ecov. factor, gas ass. phase [fraction] (0.00-1.00)     0.25     0.35     0.45       ecov. factor, gas ass. phase [fraction] (0.00-1.00)     0.25     0.35     0.45       ecov. factor, gas ass. phase [fraction] (0.00-1.00)     0.25     0.45     0.45       ecov. factor, gas ass. phase [fraction] (0.00-1.00)     0.25     0.45     0.45       ecov. factor, gas ass. phase [fraction] (0.00-1.00)     0.25     0.45     0.45       ecov. factor, gas ass. phase [fraction] (0.00-1.00)     0.25     0.45     0.45       ecov. factor, liquid ass. phase [fraction] (0.00-1.00)     0.25     0.45     0.45       ecov. factor, liquid ass. phase [fraction] (0.00-1.00)     0.45     MPD willneert value     Kart opt owill neert value       ecov. factor, liquid ass. phase [fraction] (0.00-1.00)     76     Intrapp. av geolog-init.     NPD willneert value     Kart owill neert value       ecov. factor, liquid ass. phase [fraction]     350     2	g [Rm3/Sm3] (< 1.0000)									
OPR, not gass [Sm2/Sm1] (> 0)     1.25     1.87       OPR, not [Sm2/Sm1] (> 0)     0.25     0.45       ecov. factor, ol sa as phase [fraction] (0.00-1.00)     0.25     0.45       ecov. factor, gas as phase [fraction] (0.00-1.00)     0.25     0.45       ecov. factor, gas as phase [fraction] (0.00-1.00)     0.25     0.45       ecov. factor, gas as phase [fraction] (0.00-1.00)     0.25     0.45       ecov. factor, gas main phase [fraction] (0.00-1.00)     0.25     0.45       ecov. factor, gas main phase [fraction] (0.00-1.00)     0.25     0.45       ecov. factor, gas main phase [fraction] (0.00-1.00)     0.25     0.45       ecov. factor, gas main phase [fraction] (0.00-1.00)     0.25     0.45       ecov. factor, gas main phase [fraction] (0.00-1.00)     0.25     0.45       ecov. factor, gas main phase [fraction] (0.00-1.00)     0.25     0.45       ecov. factor, gas main phase [fraction] (0.00-1.00)     0.25     0.45       ecov. factor, gas main phase [fraction] (0.00-1.00)     76     NPD will neserviale       emperature, top res [Ci (>0)     76     NPD will neserviale     NPD will neserviale       emperature, top res [ber] (>0)     350	Bo [Sm3/Rm3] (< 1.00)	0,61	0,69	0,80						
OPC of LST     125     127     220       ecov, factor, oli man phase [fraction] (0.00-1.00)     0.35     0.45       ecov, factor, gas ass. phase [fraction] (0.00-1.00)     0.25     0.45       ecov, factor, gas ass. phase [fraction] (0.00-1.00)     0.25     0.45       ecov, factor, gas ass. phase [fraction] (0.00-1.00)     0.25     0.45       ecov, factor, Build ass. phase [fraction] (0.00-1.00)     0.25     0.45       ecov, factor, Build ass. phase [fraction] (0.00-1.00)     0.25     0.45       ecov, factor, Build ass. phase [fraction] (0.00-1.00)     0.25     0.45       emperature, top res [C] (>0)     76     Immapp. av geolog-inft     NPD will neert value     Kart opdatent     NPD will neert value       etessure, top res [C] (>0)     350     20     Dati:     NPD will neert value     Registrent - Inft:     NPD will neert value     NPD will neert value     NPD will neert value     Kart nr     NPD will neert value       etessure, top res [ben] (>0)     350     2     Poroshy>0.1     3     NPD will neert value     NPD will neert value     NPD will neert value	OR, free gas [Sm <sup>3</sup> /Sm <sup>3</sup> ] (> 0)									
Constraint phase [fraction] (0.00-1.00)   0.25   0.35   0.45     ecov. factor, gas mas phase [fraction] (0.00-1.00)   0.35   0.45     ecov. factor, gas mas phase [fraction] (0.00-1.00)   0.35   0.45     ecov. factor, gas man phase [fraction] (0.00-1.00)   0.35   0.45     ecov. factor, gas man phase [fraction] (0.00-1.00)   0.35   0.45     ecov. factor, gas man phase [fraction] (0.00-1.00)   0.55   0.45     ecov. factor, gas man phase [fraction] (0.00-1.00)   0.55   0.45     ecov. factor, gas man phase [fraction] (0.00-1.00)   0.55   0.45     ecov. factor, gas man phase [fraction] (0.00-1.00)   0.55   0.45     ecov. factor, gas man phase [fraction] (0.00-1.00)   0.55   0.45     ecov. factor, liquid ass. phase [fraction] (0.00-1.00)   100   1000000000000000000000000000000000000	OR, oil [Sm <sup>3</sup> /Sm <sup>3</sup> ] (> 0)	125	187	250						
cov. factor, gas ass, phase [fraction] (0.00-1.00)   0.25   0.35   0.45     cov. factor, gas main phase [fraction] (0.00-1.00)   For NPD use:   NPD will nsert value   Kart oppdatent   NPD will nsert value     enoperature, top res [Taction] (0.00-1.00)   76   Innapp. av geolog-init:   NPD will nsert value   Registrent - Init:   NPD will insert value   Kart oppdatent   NPD will insert value     enoperature, top res [Tact] (>0)   350   Jato:   NPD will insert value   Registrent Dato:   NPD will insert value   Kart dato   NPD will insert value     resurts, top res [Tact] (>0)   350   Jato:   NPD will insert value   Registrent Dato:   NPD will insert value   Kart nr   NPD will insert value     ut off criteria for NIG calculation   1.V Shale-Q.4   2. Poroshy>0.1   3.   Stature   NPD will insert value   Kart nr   NPD will insert value	ecov. factor, oil main phase [fraction] (0.00-1.00)	0,25	0,35	0,45						
ecv. factor, gas main phase (fraction) (0.00-1.00)	ecov. factor, gas ass. phase [fraction] (0.00-1.00)	0,25	0,35	0,45						
erev. factor, lejud ass. bhase [fraction] (0.00-1.00) 76 For NPD use: emperature, top res [C] (>0) 76 Intrapp. av geolog-int: NPD will neart value Registrert - Int: NPD will neart value Kart opdatert NPD will neart value ressure, top res [bar] (>0) 350 Dato: NPD will neart value Registrert Dato: NPD will neart value Kart dato NPD will neart value top res [bar] (>0) 350 Dato: NPD will neart value Registrert Dato: NPD will neart value Kart dato NPD will neart value top resure, top res [bar] (>0) 350 Dato: NPD will neart value Registrert Dato: NPD will neart value Kart dato NPD will neart value top resure top res (NPD will neart value Registrert Dato: NPD will neart value Kart dato NPD will neart value top resure top res (NPD will neart value Registrert Dato: NPD will neart value Kart dato NPD will neart value top resure top res (NPD will neart value Registrert Dato: NPD will neart value top resure top result dato NPD will neart value top resu	ecov. factor, gas main phase [fraction] (0.00-1.00)									
emperature, top res [°C] (>0) 76 Innrapp. av geolog-int: NPD will insert value Registrert - Init: NPD will insert value Kart oppdatert NPD will insert value ressure, top res [bar] (>0) 350 Dato: Dato: NPD will insert value Registrert Dato: NPD will insert value Kart dato NPD will insert value ut off criteria for IVG calculation 1.Vshale<0.4 2.Porostly>0.1 3. It is the transmission of transmission of the transmission of transmission of the transmission of the transmission of	ecov. factor, liquid ass. phase [fraction] (0.00-1.00)				For NPD use:					
ressure, top res (bar) (>0) 350 Dato: NPD will insert value Registrent Dato: NPD will insert value Kant dato NPD will insert value   ut off criteria for N/G calculation 1.Vshale<0.4	emperature, top res [°C] (>0)	76			Innrapp. av geolog-init:	NPD will insert valu	e Registrert - init:	NPD will insert value	Kart oppdatert	NPD will insert value
ut off criteria for NG calculation 1.Vshale<0.4 2.Porosity=0.1 3. Kart nr NPD will insert value	ressure, top res [bar] (>0)	350			Dato:	NPD will insert valu	Registrent Dato:	NPD will insert value	Kart dato	NPD will insert value
	ut off criteria for N/G calculation	1.Vshale<0.4	2.Porosity>0.1	3					Kart nr	NPD will insert value

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Ta	ab	ble	<b>;</b> 4	4.:	3:	F	Pro	<u>s</u>	p	ec	t	da	ata	<u>a</u>	_	H	af	r	oi	18	2	ga	as	С	a	se	;	-	_	-	-	_	0		
Cut off criteria for N/G calculation	<sup>2</sup> ressure, top res [bar] (>0)	emperature, top res [°C] (>0)	Recov. factor, liquid ass. phase [fraction] (0.00-1.00)	Recov. factor, gas main phase [fraction] (0.00-1.00)	Recov. factor, gas ass. phase [fraction] (0.00-1.00)	Recov. factor, oil main phase [fraction] (0.00-1.00)	30R, ail [Sm <sup>3</sup> /Sm <sup>3</sup> ] (> 0)	3OR, free gas [Sm³/Sm³] (> 0)	/Bo [Sm3/Rm3] (< 1.00)	3g [Rm3/Sm3] (< 1.0000)	Vater Saturation [fraction] (0.00-1.00)	<sup>o</sup> ermeability [mD] (> 0.0)	Porosity [fraction] (0.00-1.00)	let / Gross [fraction] (0.00-1.00)	Gross rock vol. [10 <sup>9</sup> m <sup>3</sup> ] (> 0.000)	+C column in prospect [m] (> 0)	Reservoir thickness [m] (> 0)	Area of closure [km <sup>2</sup> ] (> 0.0)	Depth to top of prospect [m MSL] (> 0)	arametres:	Reservoir (P1) (0.00-1.00)	echnical (oil + gas + oil & gas case ) (0.00-1.00)	Probability [fraction]	Reservair Chrono (to)	Reservoir Chrono (from)					/olumes, this case	Resources IN PLACE and RECOVERABLE	his is case no.:	0il, Gas or O&G case:	Play name	Block
1.Vshale<0.4	350	76	0,30	0,40	0,30	0,30	125	4587	0.61	0,0033	0,25	50,0	0,17	0,60	0,087	121	159	26,3	3132	Low (P90)	0,80	0,30		Santonian/Campanian	Santonian/Campanian	Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)	Oil [10 <sup>6</sup> Sm <sup>3</sup> ] (>0.00)	Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)	Oil [10 <sup>6</sup> Sm <sup>3</sup> ] (>0.00)			3 of 3	Oil&Gas	NPD will insert value	6706/10, 6707/12
2.Porosity>0.1			0,35	0,45	0,35	0.35	187	5106	0,69	0,0034	0,33	200,0	0,18	0,66	0,385	203	182	31,1	3132	Base	Trap (P2) (0.00-1.00)	Oil case (0.00-1.00)		Reservoir litho (to)	Reservoir litho (from)	0,40	0,80	0,81	2,30	Low (P90)	Main phase	Structural element	Reported by company	New Play (Y/N)	Prospect name
3.			0,40	0,50	0,40	0,40	250	5747	0,80	0,0035	0,40	500,0	0,20	0,71	1,754	316	206	9,55	3132	High (P10)	0,54	0,08		Kvitnos fm	Kvitnos fm	0,44		0,87		Base, Mode		Vøring Basin	Equinor ASA	No	Hafr
	Dato:	Innrapp. av geolog-init:	For NPD use:																	Comments	Charge (P3) (0.00-1.00)	Gas case (0.00-1.00)		Source Rock, chrono secondary	Source Rock, chrono primary	2,79	11.50	4 71	32,80	Base, Mean		Type of trap	Reference document	Outside play (Y/N)	Discovery/Prosp/Lead
	NPD will insert value	NPD will insert value																			0,70	0,71		Unknown	Unknown	4,42	33,30	7,50	96,10	High (P10)		Structural	0	No	Prospect
	Registrent Dato:	Registrert - init:																			Retention (P4) (0.00-1.00)	Oil & Gas case (0.00-1.00)		Source Rock, litho secondary	Source Rock, litho primary	0,01	0,13	0,02	0.39	Low (P90)	Associated phase	Water depth [m MSL] (>0)			Prosp ID (or New!)
	NPD will insert value	NPD will insert value																			1,00	0,21		Unknown	Unknown	0,01		0,02		Base, Mode		1400			NPD will insert value
Kart nr	Kart dato	Kart oppdatert																						Seal, Litho	Seal, Chrono	0,05	2.16	0,15	6,18	Base, Mean		Seismic database (2D/3D)	Assessment year		NPD approved (Y/N)
NPD will insert value	NPD will insert value	NPD will insert value																						Nise fm	Campanian	0,10	6,07	:0,30	17,70	High (P10)		30	2018		No

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16	at	le	2	4.4	4:	P	r	SC	p	ec	t	da	ata	a ·	_	H	0	'n	kl	0١	/e	N	1E	. (	Dil	Cá	as	se	;		_			_	
Cut off criteria for N/G calculation	Pressure, top res [bar] (>0)	Temperature, top res [°C] (>0)	Recov. factor, liquid ass. phase [fraction] (0.00-1.00)	Recov. factor, gas main phase [fraction] (0.00-1.00)	Recov. factor, gas ass. phase [fraction] (0.00-1.00)	Recov. factor, oil main phase [fraction] (0.00-1.00)	GOR, oil [Sm <sup>3</sup> /Sm <sup>3</sup> ] (> 0)	GOR, free gas [Sm³/Sm³] (> 0)	1/Bo [Sm3/Rm3] (< 1.00)	Bg [Rm3/Sm3] (< 1.0000)	Water Saturation [fraction] (0.00-1.00)	Permeability [mD] (> 0.0)	Porosity [fraction] (0.00-1.00)	Net / Gross [fraction] (0.00-1.00)	Gross rock vol. [10 <sup>9</sup> m <sup>3</sup> ] (> 0.000)	HC column in prospect [m] (> 0)	Reservoir thickness [m] (> 0)	Area of closure [km <sup>2</sup> ] (> 0.0)	Depth to top of prospect [m MSL] (> 0)	Parametres:	Reservair (P1) (0.00-1.00)	Technical (oil + gas + oil & gas case ) (0.00-1.00)	Probability [fraction]	Reservoir Chrono (to)	Reservoir Chrono (from)	Recoverable resources	:	in biace resources		Volumes, this case	Resources IN PLACE and RECOVERABLE	This is case no.:	Oil, Gas or O&G case:	Play nar	Bio
1.Vshale<0.4	350	76			0,30	0,30	90		0.61		0,25	50,0	0,17	0,61	0,229	220	159	7,2	3250	Low (P90)	0,80	0,16		Santonian/Campanian	Santonian/Campanian	Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)	Oil [10 <sup>6</sup> Sm <sup>3</sup> ] (>0.00)	Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)	Oil [10 <sup>6</sup> Sm <sup>3</sup> ] (>0.00)			1 of 3	Oil	ne NPD will insert value	ck 6706/10, 6707/12
2.Porosity>0.1					0,35	0,35	191		0,69		0,33	200,0	0,18	0,66	0,379	256	182	8,5	3250	Base	Trap (P2) (0.00-1.00)	Oil case (0.00-1.00)		Reservoir litho (to)	Reservoir litho (from)		3.92		11,60	Low (P90)	Main phase	Structural element	Reported by company	New Play (Y/N)	Prospect name
	D	In	Fo		0,40	0,40	295		0,81		0,40	500,0	0,20	0,71	0,650	307	206	6'6	3250	High (P10) Di	0,60 CI	),19 G		Vitnos fm Sc	(vitnos fm Sc		7		22	Base, Mode Ba		Vøring Basin Ty	Equinor ASA Re	Vo 0	Hornklove NE Di
	ato:	nrapp. av geolog-init:	or NPD use:																	I assessment has been applied t	narge (P3) (0.00-1.00)	as case (0.00-1.00)		ource Rock, chrono secondary	ource Rock, chrono primary		70		00	ase, Mean		rpe of trap	eference document	utside play (Y/N)	scovery/Prosp/Lead
	NPD will insert value	NPD will insert value																		o the Hornklove NE	0,50	0,47		Unknown	Unknown		13 10		36,40	High (P10)		Structural		No	prospect
	Registrent Dato:	Registrert - init:																		segment. The total sum of DFI mo	Retention (P4) (0.00-1.00)	Oil & Gas case (0.00-1.00)		Source Rock, litho secondary	Source Rock, litho primary	0,50		1,55		Low (P90)	Associated phase	Water depth [m MSL] (>0)			Prosp ID (or New!)
	NPD will insert value	NPD will insert value																		dified risk (uncondition	1,00	0,34		Unknown	Unknown					Base, Mode		1400			NPD will insert value
Kart nr	Kart dato	Kart oppdatert																		nal segment) is 14%				Seal, Litho	Seal, Chrono	1,50		4,34		Base, Mean		Seismic database (2D/3D)	Assessment year		NPD approved (Y/N)
NPD will insert value	NPD will insert value	NPD will insert value																						Nise fm	Campanian	2,82		8,32		High (P10)		30	2018		

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Cut off criteria for N/G calculation	Pressure, top res [bar] (>0)	Temperature, top res [°C] (>0)	Recov. factor, liquid ass. phase [fraction] (0.00-1.00)	Recov. factor, gas main phase [fraction] (0.00-1.00)	Recov. factor, gas ass. phase [fraction] (0.00-1.00)	Recov. factor, oil main phase [fraction] (0.00-1.00)	GOR, oil [Sm <sup>3</sup> /Sm <sup>3</sup> ] (> 0)	GOR, free gas [Sm <sup>3</sup> /Sm <sup>3</sup> ] (> 0)	1/Bo [Sm3/Rm3] (< 1.00)	Bg [Rm3/Sm3] (< 1.0000)	Water Saturation [fraction] (0.00-1.00)	Permeability [mD] (> 0.0)	Porosity [fraction] (0.00-1.00)	Net / Gross [fraction] (0.00-1.00)	Gross rock vol. [10 <sup>9</sup> m <sup>3</sup> ] (> 0.000)	HC column in prospect [m] (> 0)	Reservoir thickness [m] (> 0)	Area of closure [km <sup>2</sup> ] (> 0.0)	Depth to top of prospect [m MSL] (> 0)	Parametres:	Reservoir (P1) (0.00-1.00)	Technical (oil + gas + oil & gas case ) (0.00-1.00)	Probability [fraction]	Reservoir Chrono (to)	Reservoir Chrono (from)	Recoverable resources		In place resources	Volumes, this case	Resources IN PLACE and RECOVERABLE	This is case no.:	Oil, Gas or O&G case:	Play nar	810
1.Vshale<0.4	350	76	0,30	0,40				4184		0,0033	0,32	50,0	0,17	0,61	0,229	220	159	7,2	3250	Low (P90)	0,80	0,16		Santonian/Campanian	Santonian/Campanian	Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)	Oil [10 <sup>8</sup> Sm <sup>3</sup> ] (>0.00)	Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)			2 of 3	Gas	ne NPD will insert value	ck 6706/10, 6707/12
2.Porosity>0.1			0,35	0,45				4651		0,0034	0,35	200,0	0,18	0,66	0.379	256	182	8,5	3250	Base	Trap (P2) (0.00-1.00)	Oil case (0.00-1.00)		Reservoir litho (to)	Reservoir litho (from)	2,19	C, C -	5 01	Low (P'90)	Main phase	Structural element	Reported by company	New Play (Y/N)	Prospect name
3			0,40	0,50				5236		0,0035	0,38	500.0	0,20	0,71	0,650	307	206	6 6	3250	High (P10)	0,60	0,19		Kvitnos fm	Kvitnos fm				Base, Mode		Vøring Basin	Equinor ASA	No	Hornklove NE
	Dato:	Innrapp. av geolog-init:	For NPD use:																	Comments	Charge (P3) (0.00-1.00)	Gas case (0.00-1.00)		Source Rock, chrono secondary	Source Rock, chrono primary	4,04	C, UC	8 99	Base, Mean		Type of trap	Reference document	Outside play (Y/N)	Discovery/Prosp/Lead
	NPD will insert value	NPD will insert value																			0,50	0,47		Unknown	Unknown	6,76	10,00	15 00	High (P10)		Structural		No	prospect
	Registrert Dato:	Registrert - init:																			Retention (P4) (0.00-1.00)	Oil & Gas case (0.00-1.00)		Source Rock, litho secondary	Source Rock, litho primary		0 36	1,05	Low (P90)	Associated phase	Water depth [m MSL] (>0)			Prosp ID (or New!)
	NPD will insert value	NPD will insert value																			1,00	0,34		Unknown	Unknown				Base, Mode		1400			NPD will insert value
Kart nr	Kart dato	Kart oppdatert																						Seal, Litho	Seal, Chrono		0 67	1,93	Base, Mean		Seismic database (2D/3D)	Assessment year		NPD approved (Y/N)
NPD will insert value	NPD will insert value	NPD will insert value																						Nise fm	Campanian		1 15	5,20	High (P10)		3D	2018		

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Cut off criteria for N/G calculation	Pressure, top res [bar] (>0)	Temperature, top res [°C] (>0)	Recov. factor, liquid ass. phase [fraction] (0.00-1.00)	Recov. factor, gas main phase [fraction] (0.00-1.00)	Recov. factor, gas ass. phase [fraction] (0.00-1.00)	Recov. factor, oil main phase [fraction] (0.00-1.00)	GOR, ail [Sm <sup>3</sup> /Sm <sup>3</sup> ] (> 0)	GOR, free gas [Sm <sup>3</sup> /Sm <sup>3</sup> ] (> 0)	1/Bo [Sm3/Rm3] (< 1.00)	Bg [Rm3/Sm3] (< 1.0000)	Water Saturation [fraction] (0.00-1.00)	Permeability [mD] (> 0.0)	Porosity [fraction] (0.00-1.00)	Net / Gross [fraction] (0.00-1.00)	Gross rock vol. [10 <sup>9</sup> m <sup>3</sup> ] (> 0.000)	HC column in prospect [m] (> 0)	Reservoir thickness [m] (> 0)	Area of closure [km <sup>2</sup> ] (> 0.0)	Depth to top of prospect [m MSL] (> 0)	Parametres:	Reservoir (P1) (0.00-1.00)	Technical (oil + gas + oil & gas case ) (0.00-1.00)	Probability [fraction]	Reservoir Chrono (to)	Reservoir Chrono (from)			III piace resources		Volumes, this case	Resources IN PLACE and RECOVERABLE	This is case no.:	Oil, Gas or O&G case:	Play name	Block
1.Vshale<0.4	350	76	0,30	0,40	0,30	0,30	06	4184	0,61	0,0033	0,25	50,0	0,17	0,61	0,229	220	159	7,2	3250	Low (P90)	0,80	0,16		Santonian/Campanian	Santonian/Campanian	Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)	Oil [10 <sup>6</sup> Sm <sup>3</sup> ] (>0.00)	Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)	Oil [10 <sup>6</sup> Sm <sup>3</sup> ] (>0.00)			3 of 3	Oil&Gas	NPD will insert value	6706/10, 6707/12
2.Porosity>0.1			0,35	0,45	0,35	0,35	191	4651	0,69	0,0034	0,33	200,0	0,18	0,66	0.379	256	182	8,5	3250	Base	Trap (P2) (0.00-1.00)	Oil case (0.00-1.00)		Reservoir litho (to)	Reservoir litho (from)	0,02	3,56	0,04	10,40	Low (P90)	Main phase	Structural element	Reported by company	New Play (Y/N)	Prospect name
3		-	0,40 F	0,50	0,40	0,40	295	5236	0,81	0,0035	0,40	500,0	0,20	0,71	0,650	307	206	9,9	3250	High (P10) C	0,60 C	0,19 0		Kvitnos fm S	Kvitnos fm S	0	7	0	2	Base, Mode E		Vøring Basin T	Equinor ASA R	0	Hornklove NE D
	ato:	nrapp. av geolog-init:	or NPD use:																	omments	harge (P3) (0.00-1.00)	as case (0.00-1.00)		ource Rock, chrono secondary	ource Rock, chrono primary	,22	49	50	1,40	ase, Mean		ype of trap	eference document	utside play (Y/N)	iscovery/Prosp/Lead
	NPD will insert value	NPD will insert value																			0,50	0,47		Unknown	Unknown	0,61	12,90	1,37	36,80	High (P10)		Structural	0		Prospect
	Registrert Dato:	Registrert - init:																			Retention (P4) (0.00-1.00)	Oil & Gas case (0.00-1.00)		Source Rock, litho secondary	Source Rock, litho primary	0,00	0,46	0,01	1,34	Low (P90)	Associated phase	Water depth [m MSL] (>0)			Prosp ID (or New!)
	NPD will insert value	NPD will insert value																			1,00	0,34		Unknown	Unknown					Base, Mode		1400			NPD will insert value
Kart nr	Kart dato	Kart oppdatert																						Seal, Litho	Seal, Chrono	0,04	1,42	0,10	4,06	Base, Mean		Seismic database (2D/3D)	Assessment year		NPD approved (Y/N)
NPD will insert value	NPD will insert value	NPD will insert value																						Nise fm	Campanian	0,11	2,72	0,30	7,87	High (P10)		30	2018		

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Cut off criteria for N/G calculation	Pressure, top res [bar] (>0)	Temperature, top res [°C] (>0)	Recov. factor, liquid ass. phase [fraction] (0.00-1.00)	Recov. factor, gas main phase [fraction] (0.00-1.00)	Recov. factor, gas ass. phase [fraction] (0.00-1.00)	Recov. factor, oil main phase [fraction] (0.00-1.00)	GOR, oil [Sm <sup>3</sup> /Sm <sup>3</sup> ] (> 0)	GOR, free gas [Sm <sup>3</sup> /Sm <sup>3</sup> ] (> 0)	1/Bo [Sm3/Rm3] (< 1.00)	Bg [Rm3/Sm3] (< 1.0000)	Water Saturation [fraction] (0.00-1.00)	Permeability [mD] (> 0.0)	Porosity [fraction] (0.00-1.00)	Net / Gross [fraction] (0.00-1.00)	Gross rock vol. [10 <sup>9</sup> m <sup>3</sup> ] (> 0.000)	HC column in prospect [m] (> 0)	Reservoir thickness [m] (> 0)	Area of closure [km <sup>2</sup> ] (> 0.0)	Depth to top of prospect [m MSL] (> 0)	Parametres:	Reservoir (P1) (0.00-1.00)	Technical (oil + gas + oil & gas case ) (0.00-1.00)	Probability [fraction]	Reservoir Chrono (to)	Reservoir Chrono (from)	Recoverable resources		in prace resources		Volumes, this case	Resources IN PLACE and RECOVERABLE	This is case no.:	Oil, Gas or O&G case:	Play na	B
1.Vshale<0.4	350	76			0,30	0,30	92		0,61		0,25	50.0	0,17	0,61	0,495	163	159	16,8	3310	Low (P90)	0,80	0,12		Santonian/Campanian	Santonian/Campanian	Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)	Oil [10 <sup>6</sup> Sm <sup>3</sup> ] (>0.00)	Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)	Oil [10 <sup>8</sup> Sm <sup>3</sup> ] (>0.00)			1 of 3	Oil	ame NPD will insert value	ock 6706/10, 6707/12
2.Porosity>0.1					0,3	6,0	19		0,6		6,0	200	0,1	0,6	1.01	22	18	19	331	Base	Trap (P2) (0.00-1.00)	Oil case (0.00-1.00)		Reservoir litho (to)	Reservoir litho (from)		8,43		25,20	Low (P90)	Main phase	Structural element	Reported by company	New Play (Y/N)	Prospect name
ω					0,40	0,40	3 295		9 0,81		3 0,40	0 500.0	8 0,20	6 0,71	0 1,898	4 308	2 206	9 22.9	0 3310	High (P10)	0,40	0,19		Kvitnos fm	Kvitnos fm					Base, Mode		Vøring Basin	Equinor ASA	No	Hornklove SW
	Dato:	Innrapp. av geolog-init:	For NPD use:																	DFI assessment has been applied	Charge (P3) (0.00-1.00)	Gas case (0.00-1.00)		Source Rock, chrono secondary	Source Rock, chrono primary		20,40		58,30	Base, Mean		Type of trap	Reference document	Outside play (Y/N)	Discovery/Prosp/Lead
	NPD will insert value	NPD will insert value																		to the Homklove SW	0,60	0,47		Unknown	Unknown		37,40		105,50	High (P10)		Structural		No	prospect
	Registrert Dato:	Registrert - init:																		' segment. The total risk after app	Retention (P4) (0.00-1.00)	Oil & Gas case (0.00-1.00)		Source Rock, litho secondary	Source Rock, litho primary	1,27		3,67		Low (P90)	Associated phase	Water depth [m MSL] (>0)			Prosp ID (or New!)
	NPD will insert value	NPD will insert value																		lication of DFI modific	1,00	0,34		Unknown	Unknown					Base, Mode		1400			NPD will insert value
Kart nr	Kart dato	Kart oppdatert																		ration (unconditional segment) is				Seal, Litho	Seal, Chrono	4,03		11,60		Base, Mean		Seismic database (2D/3D)	Assessment year		NPD approved (Y/N)
NPD will insert value	NPD will insert value	NPD will insert value																		s 12.3%				Nise fm	Campanian	8,23		24,30		High (P10)		30	2018		

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Cut off criteria for N/G calculation	Pressure, top res [bar] (>0)	emperature, top res [°C] (>0)	Recov. factor, liquid ass. phase [fraction] (0.00-1.00)	Recov. factor, gas main phase [fraction] (0.00-1.00)	Recov. factor, gas ass. phase [fraction] (0.00-1.00)	Recov. factor, oil main phase [fraction] (0.00-1.00)	30R, ail [Sm <sup>3</sup> /Sm <sup>3</sup> ] (> 0)	3OR, free gas [Sm³/Sm³] (> 0)	/Bo [Sm3/Rm3] (< 1.00)	3g [Rm3/Sm3] (< 1.0000)	Vater Saturation [fraction] (0.00-1.00)	<sup>o</sup> ermeability [mD] (> 0.0)	Porosity [fraction] (0.00-1.00)	let / Gross [fraction] (0.00-1.00)	3ross rock vol. [10 <sup>9</sup> m <sup>3</sup> ] (> 0.000)	IC column in prospect [m] (> 0)	Reservoir thickness [m] (> 0)	Area of closure [km <sup>2</sup> ] (> 0.0)	Depth to top of prospect [m MSL] (> 0)	<sup>3</sup> arametres:	Reservoir (P1) (0.00-1.00)	echnical (oil + gas + oil & gas case ) (0.00-1.00)	Probability [fraction]	Reservoir Chrono (to)	Reservoir Chrono (from)	Recoverable resources		n place resources	/olumes, this case	Resources IN PLACE and RECOVERABLE	his is case no.:	Dil, Gas or O&G case:	Play name	Block
1.Vshale<0.4	350	76	0,30	0,40				4184		0,0033	0,32	50.0	0,17	0,61	0,495	163	159	16,8	3310	Low (P90)	0,80	0,12		Santonian/Campanian	Santonian/Campanian	Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)	Oil [10 <sup>6</sup> Sm <sup>3</sup> ] (>0.00)	Oil [10 <sup>5</sup> Sm <sup>3</sup> ] (>0.00)			2 of 3	Gas	NPD will insert value	6706/10, 6707/12
2.Porosity>0.1			0,35	0,45				4651		0,0034	0,35	200,0	0,18	0,66	1,010	224	182	19,9	3310	Base	Trap (P2) (0.00-1.00) (	Oil case (0.00-1.00) (		Reservoir litho (to)	Reservoir litho (from)	4,70	10,70	40 70	Low (P90) E	Main phase	Structural element	Reported by company b	New Play (Y/N)	Prospect name
			0,40	0,50				5236		0,0035	0,38	500.0	0,20	0,71	1,898	308	206	22,9	3310	ligh (P10)	),40	),19		(vitnos fm	(vitnos fm				Base, Mode		/øring Basin	Equinor ASA	ło	fornklove SW
	Dato:	Innrapp. av geolog-init:	For NPD use:			<u>.</u>	<u>.</u>			-		-								Comments; DFI assessment has b	Charge (P3) (0.00-1.00)	Gas case (0.00-1.00)		Source Rock, chrono secondary	Source Rock, chrono primary	10,70	23,00		Base, Mean		Type of trap	Reference document	Outside play (Y/N)	Discovery/Prosp/Lead
	NPD will insert value	NPD will insert value																		een applied to the H	0,60	0,47		Unknown	Unknown	19,50	:43,4U	5	High (P10)		Structural		No	prospect
	Registrert Dato:	Registrert - init:																		omklove SW segment. The total r	Retention (P4) (0.00-1.00)	Oil & Gas case (0.00-1.00)		Source Rock, litho secondary	Source Rock, litho primary	S	0 77	2.28	Low (P90)	Associated phase	Water depth [m MSL] (>0)			Prosp ID (or New!)
	NPD will insert value	NPD will insert value																		isk after application of	1,00	0,34		Unknown	Unknown				Base, Mode		1400			NPD will insert value
Kart nr	Kart dato	Kart oppdatert																		<sup>1</sup> DFI modification (unconditional				Seal, Litho	Seal, Chrono		1 79	5,12	Base, Mean		Seismic database (2D/3D)	Assessment year		NPD approved (Y/N)
NPD will insert value	NPD will insert value	NPD will insert value																		/ segment) is 12.3%				Nise fm	Campanian		3 30	9,30	High (P10)		3D	2018		

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Table 4.9: Prospect data – Hornklove SW oil & gas case																																			
Cut off criteria for N/G calculation	Pressure, top res [bar] (>0)	Temperature, top res [°C] (>0)	Recov. factor, liquid ass. phase [fraction] (0.00-1.00)	Recov. factor, gas main phase [fraction] (0.00-1.00)	Recov. factor, gas ass. phase [fraction] (0.00-1.00)	Recov. factor, oil main phase [fraction] (0.00-1.00)	GOR, oil [Sm <sup>3</sup> /Sm <sup>3</sup> ] (> 0)	GOR, free gas [Sm <sup>3</sup> /Sm <sup>3</sup> ] (> 0)	1/Bo [Sm3/Rm3] (< 1.00)	Bg [Rm3/Sm3] (< 1.0000)	Water Saturation [fraction] (0.00-1.00)	Permeability [mD] (> 0.0)	Porosity [fraction] (0.00-1.00)	Net / Gross [fraction] (0.00-1.00)	Gross rock vol. [10 <sup>9</sup> m <sup>3</sup> ] (> 0.000)	HC column in prospect [m] (> 0)	Reservoir thickness [m] (> 0)	Area of closure [km <sup>2</sup> ] (> 0.0)	Depth to top of prospect [m MSL] (> 0)	Parametres:	Reservoir (P1) (0.00-1.00)	Technical (oil + gas + oil & gas case ) (0.00-1.00)	Probability [fraction]	Reservair Chrono (to)	Reservair Chrono (from)					Volumes, this case	Resources IN PLACE and RECOVERABLE	This is case no.:	Oil, Gas or O&G case:	Play nam	Bloc
1.Vshale<0.4	350	76	0,30	0,40	0,30	0,30	90	4184	0,61	0,0033	0,25	50,0	0,17	0,61	0,495	163	159	16.8	3310	Low (P90)	0,80	0,12		Santonian/Campanian	Santonian/Campanian	Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)	Oil [10 <sup>6</sup> Sm <sup>3</sup> ] (>0.00)	Gas [10 <sup>9</sup> Sm <sup>3</sup> ] (>0.00)	Oil [10 <sup>6</sup> Sm <sup>3</sup> ] (>0.00)			3 of 3	Oil&Gas	NPD will insert value	:k 6706/10, 6707/12
2.Porosity>0.1			0,35	0,45	0,35	0,35	191	4651	0,69	0,0034	0,33	200,0	0,18	0,66	1,010	224	182	19,9	3310	Base	Trap (P2) (0.00-1.00)	Oil case (0.00-1.00)		Reservoir litho (to)	Reservoir litho (from)	0,15	7,01	0,33	20,30	Low (P90)	Main phase	Structural element	Reported by company	New Play (Y/N)	Prospect name
3.			0,40	0,50	0,40	0,40	295	5236	0,81	0,0035	0,40	500,0	0,20	0,71	1,898	308	206	22.9	3310	High (P10)	0,40	0,19		Kvitnos fm	Kvitnos fm					Base, Mode		Vøring Basin	Equinor ASA		Hornklove SW
	Dato:	Innrapp. av geolog-init:	For NPD use:																	Comments; DFI assessment has b	Charge (P3) (0.00-1.00)	Gas case (0.00-1.00)		Source Rock, chrono secondary	Source Rock, chrono primary	0,93	19.30	2,07	55,30	Base, Mean		Type of trap	Reference document	Outside play (Y/N)	Discovery/Prosp/Lead
	NPD will insert value	NPD will insert value																		een applied to the H	0,60	0,47		Unknown	Unknown	2,18	36,80	4,39	106,10	High (P10)		Structural	0		Prospect
	Registrert Dato:	Registrert - init:																		mklove SW segment. The total r	Retention (P4) (0.00-1.00)	Oil & Gas case (0.00-1.00)		Source Rock, litho secondary	Source Rock, litho primary	0,02	0.96	0,07	2,83	Low (P90)	Associated phase	Water depth [m MSL] (>0)			Prosp ID (or New!)
	NPD will insert value	NPD will insert value																		isk after application of	1,00	0,34		Unknown	Unknown					Base, Mode		1400			NPD will insert value
Kart nr	Kart dato	Kart oppdatert																		f DFI modification (unconditional				Seal, Litho	Seal, Chrono	0,16	3,68	0,45	10,50	Base, Mean		Seismic database (2D/3D)	Assessment year		NPD approved (Y/N)
NPD will insert value	NPD will insert value	NPD will insert value																		vl segment) is 12.3%				Nise fm	Campanian	0,37	7,70	1,04	22,10	High (P10)		30	2018		

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5 Technical evaluation

Since the APA2016, no new technical/economical evaluation has been done for any of the prospects in the PL899 license, since probabilities of an oil discovery are low and volumes have declined in Hafr (main prospect). Instead, it is referred to chapter 2.3.4 and 2.4 in the application for further details on historical evaluation and potential development plans.

### 6 Conclusion

The work programme for the initial period of PL899 has been fulfilled by the partnership. Partners of PL899 agree that the combination of low probability of success and low oil volume potential in Hafr do not support any exploration drilling in PL899.

### 7 References

APA2016; "Awards in predefined areas - Part of blocks 6706/12 and 6707/10"