Surrender reporting

Subject: PL841 Surrender

Date: December 19, 2019

Summary: The evaluation has concluded that PL841 is a low materiality asset with a very high risk associated to hydrocarbon occurrence.

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1. History of the production license

PL841 was awarded as a result of APA 2015, on 5th of February 2016 to the following partners.
Edison Norge AS, Operator (40%)
Equinor (20%)
Lime Petroleum (20%)
Petoro (20%)
The license covers 111.12 km^2 area of the block 6608/8, in the Norwegian Sea on the northern part of the Nordland Ridge, up dip of the deep Træna basin and north-east of the Norne field (fig.1) with a water depth of 330m.
The work commitment with stipulated time limits include a 2 years sub-period to acquire 3D seismic data, conduct G&G studies before Drill or Drop decision on 05.02.2018. Within 4 years from award, drill exploration well and decide to concretize (BoK) or drop on 05.02.2020. Within 6 years from the award, perform conceptual studies and decide on continuation (BoV) or drop before 05.02.2022. Within 7 years from award, prepare development plan and decide to submit PDO or drop before 05.02.2023.

Two extensions of the license time limits were awarded following the Operator's request supported by all the partners. First and second consecutive extensions were 18 and 6 months respectively that changed the final Drill or Drop decision to 05.02.2020.

1.1 Overview of the meetings held

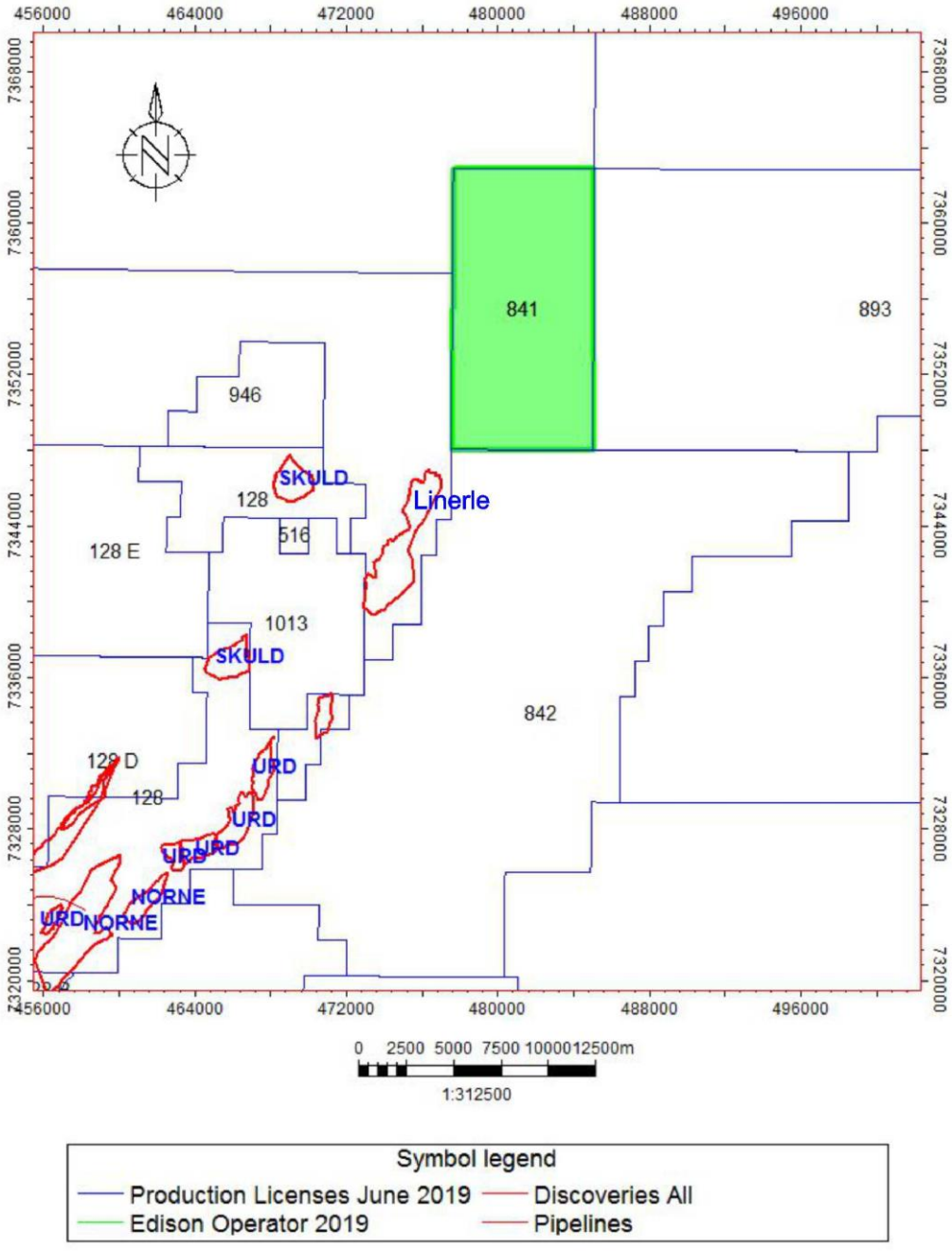
PL841 project was formally established following a start-up meeting held on 5th of April, 2016. A total of 10 formal meetings including 8 ECMC and 2 work meetings have been organized by the operator and all the minutes of meetings have been posted and approved by the partners on L2S.

1.2 Brief explanation of grounds for Surrender

The main exploration potential of the license is represented by the Brøgger prospect, a four-way dip structure on top Paleozoic Carbonates (Frontier play). Two additional leads of the Lower Jurassic sands (Åre formation), Størmer and Waage were also considered in the APA application that failed to turn into viable prospects (Figure 2).

The potential hydrocarbon volumes and associated risk of Brøgger have been reviewed following the two years plus eighteen months of comprehensive geological and advanced geophysical work. The revised exploration potential of the license led to a very high risk, low reward economy and therefore the partnership decision was to apply for an additional six months extension and wait for the result of the neighboring well, 6608/6-1 (PL762) to possibly further de-risk the prospect. The negative result of the well added to the

uncertainties and the joint venture's decision was to ultimately surrender PL841 within the deadline of February 5th, 2020. The decision was supported unanimously by the four partners in the joint venture.



Fugure 1. Location map of PL841, neighboring licenses and discoveries

2. Database overview

2.1 Seismic data

As part of the work program the modern IsoMetrix 3D seismic data were acquired early in 2016 with a full coverage of the license (111km^2) and used for the evaluation of the license (figure 2). The acquired data includes additional pre-stack gathers covering 77 km2 of the prospect area to conduct seismic reservoir characterization. The acquired data is listed below and shown in figure 2:

1-NORDLAND RIDGE 2015 MIC-FIN KPSTM STK FULL OFFSET (111km^2)
2-NordRidge153D_anglestack_kprstm_unscaled_far (77km^2)
3- NordRidge153D_anglestack_kprstm_unscaled_mid (77km^2)
4-NordRidge153D_anglestack_kprstm_unscaled_near (77km^2)
5-NordRidge153D_gathers_kprstm_fxiir_radon (77km^2)
6-NORDLAND RIDGE 153D VELMOD STACKING TIME (111km^2)

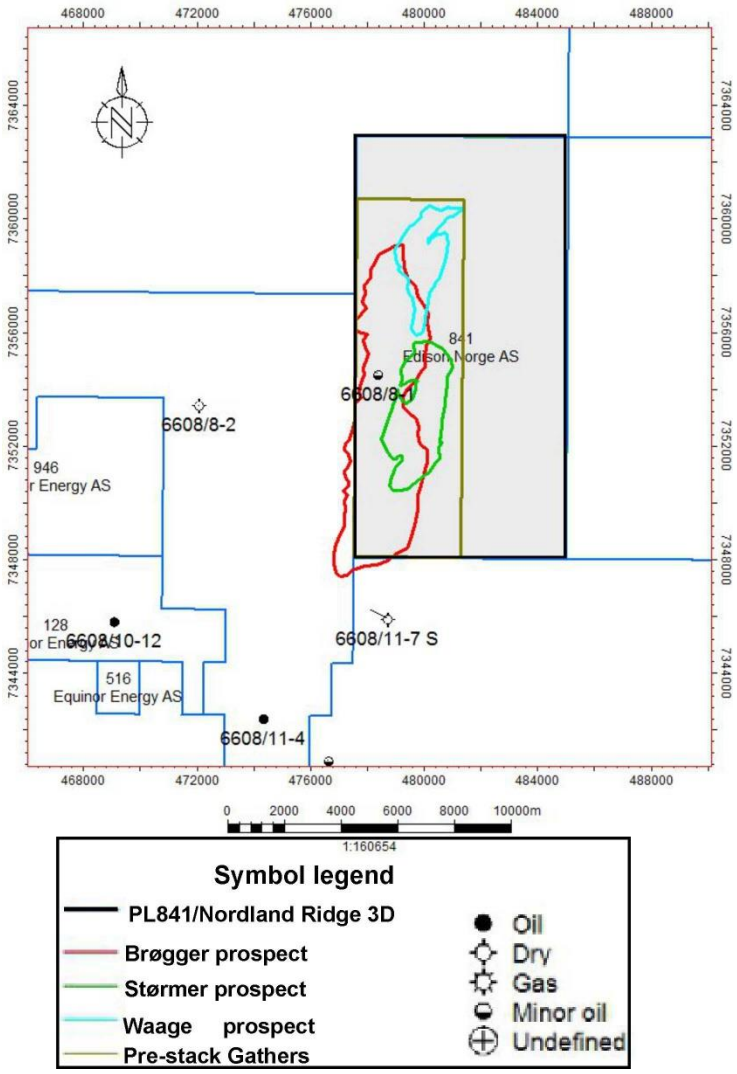


Figure 2:Location map of PL841, prospect/leads and seismic surveys

Following partial stack data are generated using pre-stack spectral decomposition
1-CEEMD-2100-3400-angleStack-5-15 (2Hz-20Hz)-10 volumes
2- CEEMD-2100-3400-angleStack-15-30 (2Hz-20Hz)- 10 volumes
3- CEEMD-2100-3400-angleStack-30-55 (2Hz-20Hz)- 10 volumes

2.2 Well data

There was no wells in the common database. The following four released wells including their cores and cuttings were analyzed in detail and used for the license evaluation. 6608/8-1, 6609/7-1, 6507/6-4A and 6611/9-U-01

3. Results of geological and geophysical studies

3.1 List of the performed geological studies

-Sedimentology and depositional system analysis were performed on the cores and cuttings from the 4 wells mentioned above. These are the only wells that targeted Paleozoic rocks in the Norwegian Sea. The sedimentology study included the following subjects:

- -Core and cutting examinations
- -Microfacies and diagenensis description of core and cutting samples
- -Cathodoluminescence examination
- -Fluid inclusion, inclusion petrography, FL spectrometry, Microthermometery

A comprehensive report including core, cuttings and thin sections photos and the related interpretation are compiled.

3.2 Results of the geological studies

Upper Permian, Zechstein group in Mid Norway is “transitional area” between cold water carbonates of Barents and arid hot environments of the Zechstein Basin. The time equivalent of these rocks in E. Greenland exposures could be used as analogue for the Brøgger prospect. Microfacies and depositional system studies conducted on the 4 wells revealed four very different depositional systems. Moreover, the most relevant well inside the license, 6608/8-1 is very challenging to interpret. Inspection of the rock samples and thin sections indicates presence of foliation, well-developed marbles, lack of biofacies and there is no sedimentary structure/textures. The rocks are heavily fractured and there are evidence of cavernous carbonates mainly of Hypogenic type. These rocks are heavily influenced by hydrothermal fluids confirmed by presence of heavy minerals like Sphalerite and Barite. This well encountered a cave that is mapped using the high precision seismic data analysis. Due to complete loss at the TD, no wireline logs or DST test could be acquired. Fluid inclusion indicated presence of light oil within the dolomite cements. This oil can only be

sourced from the Permian source rock that possibly escaped from the reservoir during hydrothermal fracturing events.
Carbonates in 6608/8-1 remains mysterious, but there are clear evidences of hydrothermal activity and potentially reservoir improving process. Observations in 6608/8-1 may not be representative for the entire Brøgger prospect. Outside the area around the well within the southern culmination of the Brøgger structure we expected to find a more conventional reservoir similar to reservoir rocks found in well 6609/7-1 (i.e. Permian bryozoan build-ups). To address these issues and reduce uncertainty we used special geophysical techniques to investigate lateral variation in rock properties potentially linked to reservoir type and quality. The results of this study is explained in 3.4.

3.3 List of performed Geophysical Studies

-Seismic geomorphology/interpretation and mapping
-Seismic attribute mapping
-Velocity modeling for depth conversion
-Seismic pattern recognition using PCA
-Conventional AVO analysis
Scanning electromicroscope (QEMSCAN) to generate elastic property and porosity logs.
Seismic reservoir characterization including (simultaneous inversion, conventional AVO, pre-stack offset-dependent velocity analysis (dispersion) for HC detection)

3.4 Results of the geophysical studies

Seismic structural interpretation clearly confirms that the Brøgger prospect is a robust 4-way closure. However, in-depth geophysical analysis didn't show any geomorphological evidence suggesting possible development of carbonate build-ups. Lack of carbonate architectural elements made the reservoir prediction very challenging.
Conventional AVO analysis are difficult in carbonates and resulted in false positive response. Simultaneous seismic inversion was used to investigate rock properties.These inversion results were uncertain due to lack of well calibration. In order to expand the information content, electromicroscope scanning (QEMSCAN) technology was utilized to generate elastic logs (Vp, Vs, Density) and porosity log from the cuttings. These additional logs were used to calibrate the simultaneous seismic inversion. The resulted porosity cubes were used to investigate reservoir distribution and fine tuning the volumetric calculations. Hydrocarbon detection in carbonates is challenging.

Velocity dispersion/attenuation analysis is a powerful technique successfully tested in HC-filled cavernous carbonates (Yadung Li et.al., 2016; Chapman et.al., 2005,2006). This technique requires frequency spectral analysis on pre-stack data. The aim was to apply this technology in the license. However, application of pre-stack spectral analysis is CPU

demanding and time consuming. This study was conducted during 18 months extended period of the license.
Frequency/offset-dependent spectral Vp and attenuation analysis showed a sizeable deep-sited potential Low Frequency anomaly within the prospect. This anomaly is located deeper than expected (much deeper than the expected base carbonates).

Multiple scenarios and several alternative geological models were unable justify and explain this deep anomaly. The results of this study made the Brøgger prospect more mysterious.

The spin-off of this study was high resolution images of caves. One of these caves is penetrated by 6608/8-1 and is brine-filled.

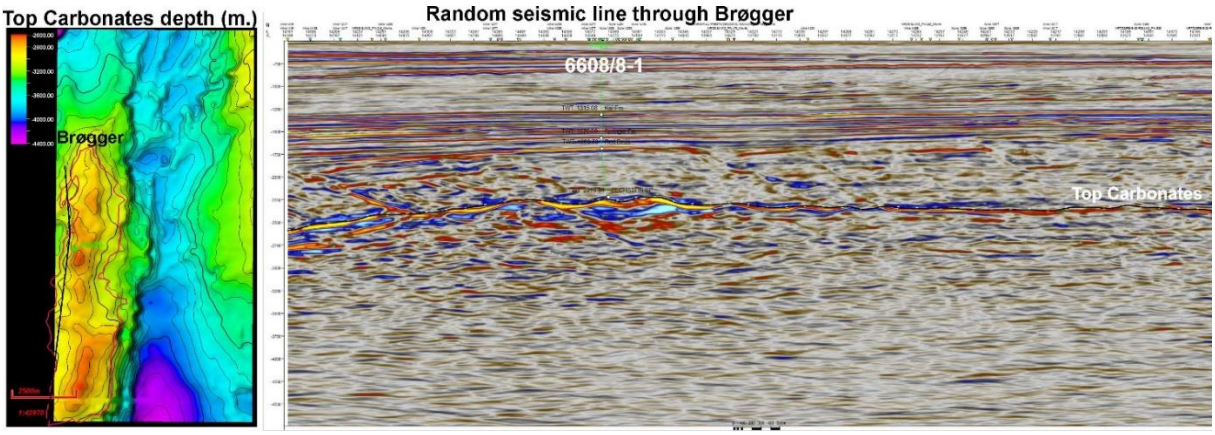


Figure 3. Brøgger prospect- top carbonate depth map and seismic

3.5 Significant change in understanding compared with original application

Extensive G&G studies including detailed inspection of the rock samples and utilization of advanced geophysics revealed much more complexities than expected at the time of the application. These complexities include more heterogeneity and lateral variation of the reservoir properties than expected before.

A dry well targeting the same play in the neighboring PL762 license added to the uncertainties and increased the risk for both reservoir and source efficiencies.

4. Prospect update report

The Brøgger prospect is the main target defined as a robust four-way closure on Top Paleozoic rocks, sealed by thick Triassic shales (figure 4). This structure was drilled by the well 6608/8-1 in 1997 and encountered critical technical problems related to loss of mud circulation and finally a complete loss at the TD and losing the well.
The technical problems prevented performing wireline logging and DST within the reservoir and the only available log was LWD (GR). In the absence of these measurements from the

well, the Brøgger prospect could be a missed discovery that deserved detailed inspection using high quality seismic data and high precision G&G studies.
In order to expand the information content of the well data, QEMSCAN technology were utilized to generate elastic property logs (Vp, Vs, DEN) and porosity from the cutting samples. These logs were then used to calibrate the seismic inversion results and generate porosity volumes.
The potential source rock for the Brøgger prospect is time equivalent shale of the Upper Permian Ravnefjeld Formation of East Greenland. This unproven source is deposited along the axis of a large late Permian basin surrounded by shallow water carbonate platforms. Basin modelling suggested that this source can be oil and gas mature and would be able to generate vast amount of HC within the license area.

The main risk for Brøgger is Reservoir and source efficiency.

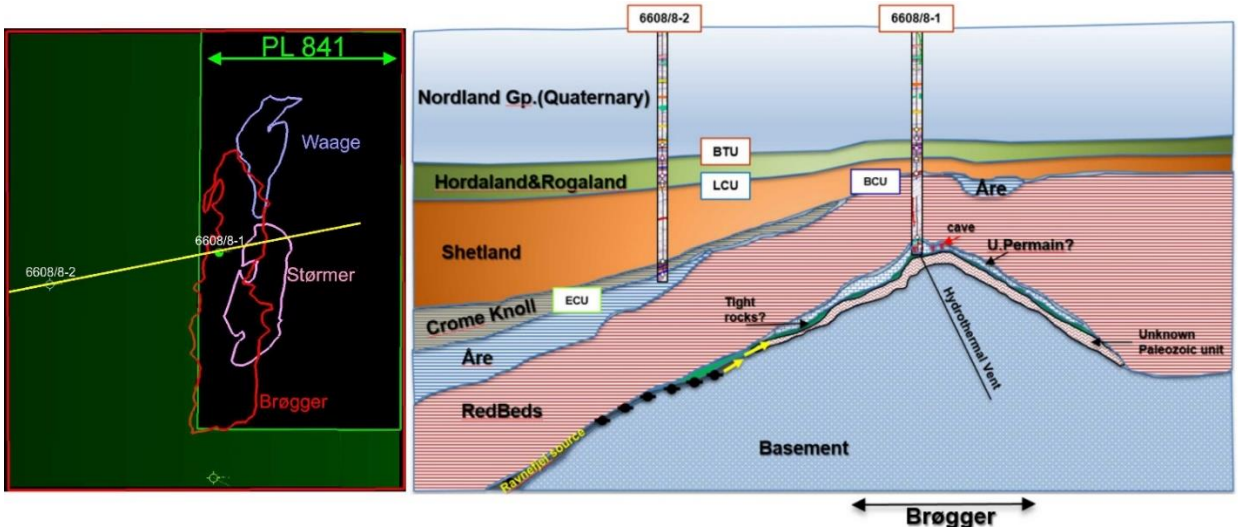


Figure 4: Geo seismic section showing the Brøgger prospect and the overburden interval

4.1 Main challenges with the Brøgger prospect

Paleozoic carbonates encountered by 6608/8-1 well are much thicker than their time equivalent rocks exposed in East Greenland and demonstrate unique characteristics.

Extensive recrystallization and evidences of foliation (well 6608/8-1) and dynamic metamorphism (crystallization under pressure) distinguish them from outcrops in East Greenland.
Hypogenic Karst development related to hydrothermal fluids, localized in the central part of the structure will be drilling hazard. Well 6608/8-1 went out of control in one of the large caves in 1997 (figure 5).

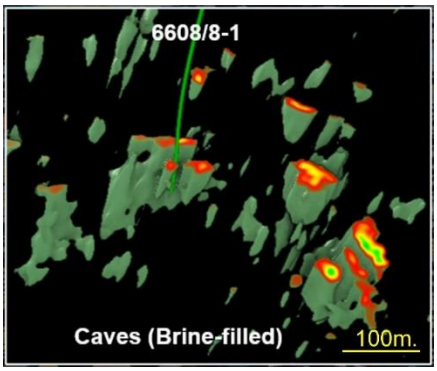
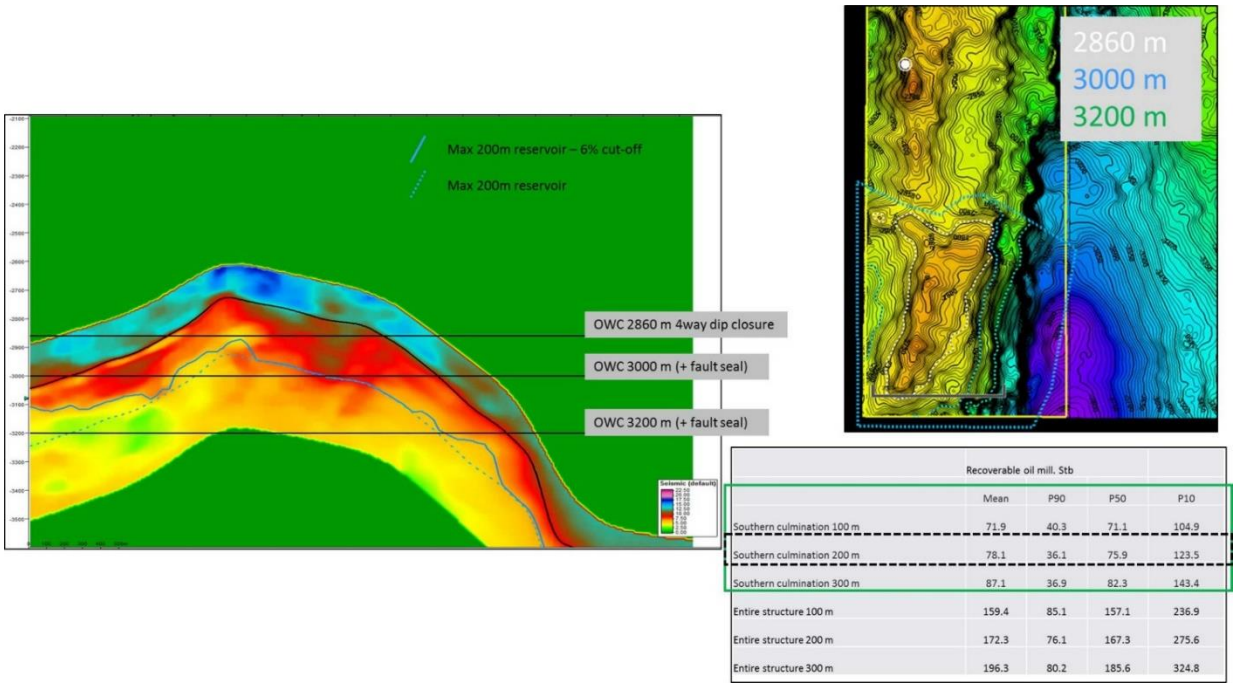


Figure 5: Caves detected from high resolution seismic analysis around 6608/8-1 well.

As opposed to our preliminary understanding, a massive potential Low frequency anomaly is distributed deeper than the cave system that is difficult to put in a reasonable geological context.
Distribution of this anomaly at depths below the drilled interval makes it very challenging to consider a Permian age for the host rock. Such a thick interval could not be easily correlated with 150m Permian carbonates exposed in E. Greenland.
Due to the nature of seismically fast carbonate rocks, seismic response is complicated and conventional AVO is inconclusive.
Development of cave structures and their velocity dispersion effect provide additional difficulties and advantages as well. In order to benefit from velocity dispersion and measure them as hydrocarbon response, high quality seismic data were not enough and pre-stack spectral decomposition were applied to measure the dispersion.
Application of advanced geophysical analysis revealed more complexities than expected.

Conventional volumetric calculation was also challenging to capture the complex distribution of potential hydrocarbon in cavernous carbonates.
We used seismically inverted porosities calibrated with QEMSCAN measurements from the cuttings for this purpose.
Base of the carbonate interval is unknown and undetectable. We used a maximum reservoir thickness of 200m, therefore the thickness varies between 0-200m within the Brøgger closing polygon (figure 6).
We did the same excecise with maximum 100m and 300m for this calculation and used the min/max volumes for the technical/economical evaluation.
The small yellow rectangle in figure 5 in the outline of the inverted volume, not including the maximum OWC. In terms of prospect definition this is the only way to use the real data.



	Recoverable oil mill. Stb			
	Mean	P90	P50	P10
Southern culmination 100 m	71.9	40.3	71.1	104.9
Southern culmination 200 m	78.1	36.1	75.9	123.5
Southern culmination 300 m	87.1	36.9	82.3	143.4
Entire structure 100 m	159.4	85.1	157.1	236.9
Entire structure 200 m	172.3	76.1	167.3	275.6
Entire structure 300 m	196.3	80.2	185.6	324.8

Figure 6- Volumetric calculation for the southern culmination of the Brøgger prospect

Following table shows the resource estimates pre-award.

Discovery/ Prospect/ Lead name [1]	D/ P/ L [2]	Case (Oil/ Gas/ Oil&Gas) [3]	Unrisked recoverable resources [4]						Probability of discovery [5] (0.00 - 1.00)	Resources in acreage applied for [%] [6] (0.0 - 100.0)	Reservoir		Nearest relevant infrastructure [8]	
			Oil [10^6Sm^3] (>0.00)			Gas [10^9Sm^3] (>0.00)					Litho-/ Chrono-stratigraphic level [7]	Reservoir depth [m MSL] (>0)	Name	Km (>0)
			Low (P90)	Base (Mean)	High (P10)	Low (P90)	Base (Mean)	High (P10)						
Brøgger	P	Oil&Gas	23.00	40.00	72.00	5.50	14.70	26.00	0.18	100.0	Zechstein/Perm	2630	Norne	36
Stormer	P	Oil	8.30	21.40	36.80				0.10	100.0	Åre/Low Jur	1648	Norne	36
Waage	P	Oil	3.70	8.50	7.90				0.10	100.0	Åre/Low Jur	1781	Norne	40

NPD table 2 resource potential (pre-award)

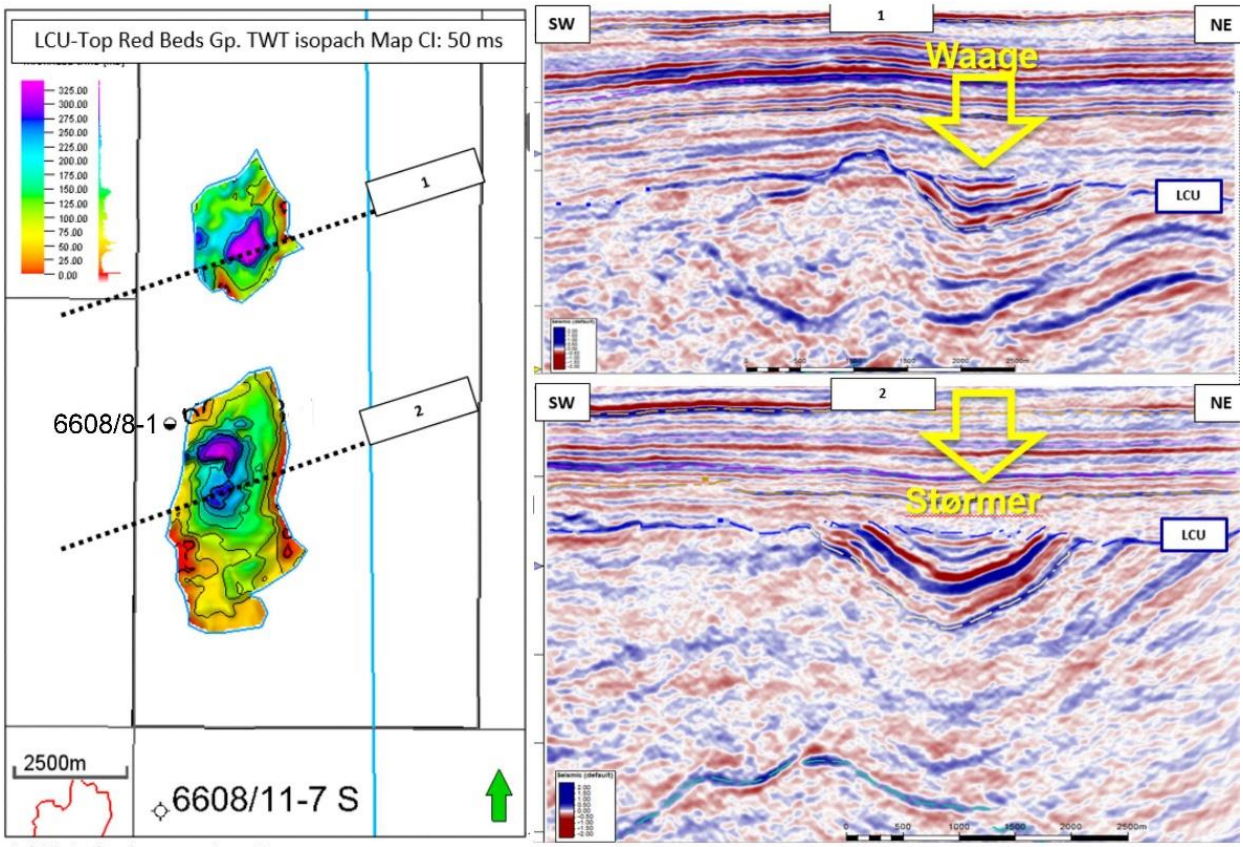
Following table shows the final resource estimates for the Brøgger prospect.

Block	6608/8	Prospect name	Bregger	Discovery/Prosp/Lead		Prosp ID (or New!)	NPD will insert value	NPD approved (Y/N)	
Play name	NPD will insert value	New Play (Y/N)		Outside play (Y/N)					
Oil, Gas or O&G case:	Oil	Reported by company	Edison Norge	Reference document				Assessment year	2019
This is case no.:		Structural element	Rødøy High	Type of trap	Structural 4way	Water depth [m MSL] (>0)		Seismic database (2D/3D)	
Resources IN PLACE and RECOVERABLE		**Main phase**				**Associated phase**			
Volumes, this case		Low (P90)	Base, Mode	Base, Mean	High (P10)	Low (P90)	Base, Mode	Base, Mean	High (P10)
In place resources	Oil [10^6 Sm^3] (>0.00)	19,80	40,90	41,30	63,50				
	Gas [10^9 Sm^3] (>0.00)	2,87	5,66	5,99	9,21				
Recoverable resources	Oil [10^6 Sm^3] (>0.00)	5,74	12,90	12,40	19,60				
	Gas [10^9 Sm^3] (>0.00)	0,84	1,71	1,79	2,79				
Reservoir Chrono (from)	Permian	Reservoir litho (from)	Wegener Halvø	Source Rock, chrono primary	Permian	Source Rock, litho primary	Ravnefjeld Fm	Seal, Chrono	Triassic
Reservoir Chrono (to)	Caledonian/Paleozoic	Reservoir litho (to)	Basement	Source Rock, chrono secondary	Late Jurassic	Source Rock, litho secondary	Spekk Fm	Seal, Litho	Redbeds
Probability [fraction]									
Total (oil + gas + oil & gas case) (0.00-1.00)	1.00	Oil case (0.00-1.00)	1.00	Gas case (0.00-1.00)		Oil & Gas case (0.00-1.00)			
Reservoir (P1) (0.00-1.00)	0.54	Trap (P2) (0.00-1.00)	1.00	Charge (P3) (0.00-1.00)	0,45	Retention (P4) (0.00-1.00)	0,70		
Parametres:	Low (P90)	Base	High (P10)	*GRV is defiend by inversion work outside of the GeoX, therefore the reservoir thickness is a fixed maximum as is also GRV*					
Depth to top of prospect [m MSL] (> 0)		2760							
Area of closure [km^2] (> 0.0)	6,3	8,5	9,5						
Reservoir thickness [m] (> 0)	200	200	200						
HC column in prospect [m] (> 0)	165	248	342						
Gross rock vol. [10^9 m^3] (> 0.000)	1,807	1,807	1,807						
Net / Gross [fraction] (0.00-1.00)	0,57	0,65	0,73						
Porosity [fraction] (0.00-1.00)	0,10	0,13	0,16						
Permeability [mD] (> 0.0)									
Water Saturation [fraction] (0.00-1.00)	0,43	0,35	0,27						
Bg [Rm3/Sm3] (< 1.0000)									
1/Bo [Sm3/Rm3] (< 1.00)	0,66	0,71	0,76						
GOR, free gas [Sm^3/Sm^3] (> 0)									
GOR, oil [Sm^3/Sm^3] (> 0)	142	145	147						
Recov. factor, oil main phase [fraction] (0.00-1.00)	0,25	0,30	0,35						
Recov. factor, gas ass. phase [fraction] (0.00-1.00)	0,25	0,30	0,35						
Recov. factor, gas main phase [fraction] (0.00-1.00)									
Recov. factor, liquid ass. phase [fraction] (0.00-1.00)				For NPD use:					
Temperature, top res [°C] (>0)				Innrapp. av geolog-init:	NPD will insert value	Registrert - init:	NPD will insert value	Kart oppdatert	NPD will insert value
Pressure, top res [bar] (>0)				Dato:	NPD will insert value	Registrert Dato:	NPD will insert value	Kart dato	NPD will insert value
Cut off criteria for N/G calculation	1.	2.	3.					Kart nr	NPD will insert value

NPD table 5: prospect data

4.2 Secondary Leads

The secondary leads, Størmer and Waage could potentially contain the lower Jurassic fluvial sandstones of the Åre Formation (Fig.7). These leads were initially considered to represent the northward continuation of the oil trend from Norne discovery.
The Jurassic rock thicknesses are gradually reducing due to Northward erosion but some remnants are preserved in local grabens forming the Størmer and Waage leads.



LCU: L.Cret. unconformity

Figur 7: Størmer and Waage leads

The source rock for these leads can only be the Permian Ravnefjel shales as for the Brøgger prospect and they cannot be charged from younger sources (Spekk). However, due to about 900m of the Triassic shales overlying the Permian source, charging these leads is extremely challenging if not impossible. Therefore the main risk for these leads are migration route and lateral seal.
Due to very high migration risk and very negative results from geophysical analysis and marginal volumes these leads were eventually downgraded.

5. Technical evaluation

For preliminary technical and economical evaluations several alternative scenarios were tested for the Brøgger structure. However, following a joint venture's alignment, only the evaluation of the southern culmination of the structure were considered as the main driver.

The reason for regarding the northern part with disfavor was because the northern structure is already tested with a dry well TD'ed in massively crystalized and hydrothermally affected carbonates and marbles.

The southern culmination could possibly consist of more conventional carbonate reservoirs like bryozoan build ups found in neighboring 6609/7-1.
The following preliminary development scenarios were discussed for the southern culmination of Brøgger.

1-P90 - tieback to Dompap manifold (feasibility of tieback to Dompap not confirmed).
Reserves 40 mmbbl, 2 producers, 1 water injector and drive mechanism WI+GL
2-P50 -tieback to Dompap manifold.
Reserves 76 mmbbl, 3 producers, 1 water injector and drive mechanism WI+GL
3-P10 tieback to Norne FPSO (spare capacity at Norne granted in writing by Statoil
Reserves 143 mmbbl, 5 producer, 3 water injector and drive mechanism WI+GL
4-P10 standalone (New FPSO moored)
Reserves 143 mmbbl, 5 producer, 3 water injector and drive mechanism WI+GL
The total CAPEX + ABEX considering facilities and drilling is 912 MUSD for P50 scenario as Tieback to Dompap manifold.

The economical evaluation for the selected development scenarios returned marginally positive NPV.
Considering the development of the southern culmination (P50 scenario) as a tieback to Dompap and RNB 2017 commodity prices and a Hrdle rate of 10% the calculated NPV is NOK/boe 26.7

6. Conclusion

Following the comprehensive G & G studies carried out utilizing a modern 3D seismic and all the available well data, PL841 partners believe that the Permian Play is very interesting with great potential. However, the Brøgger prospect with a mysterious, partly metamorphic reservoir and unknown age cannot be de-risked further. Furthermore, initial results of the recent exploration well (6608/6-1) that targeted time equivalent of the reservoir in the neighboring PL762 has a major negative impact in particular on the reservoir quality.
Microfacies / diagenesis study of 6608/6-1 is important for a better regional understanding of the Permian carbonates but it will have minor / no impact with regards to de-risking of the Brøgger prospect. In order to benefit from the new well results, much more seismic data covering both prospects and wells (6608/8-1 & 6608/6-1) will have to be considered. This requires additional extension of the DoD and much greater investment.
The PL841 partners are currently not convinced to proceed with additional work program and investment and unanimously agreed to surrender the license.