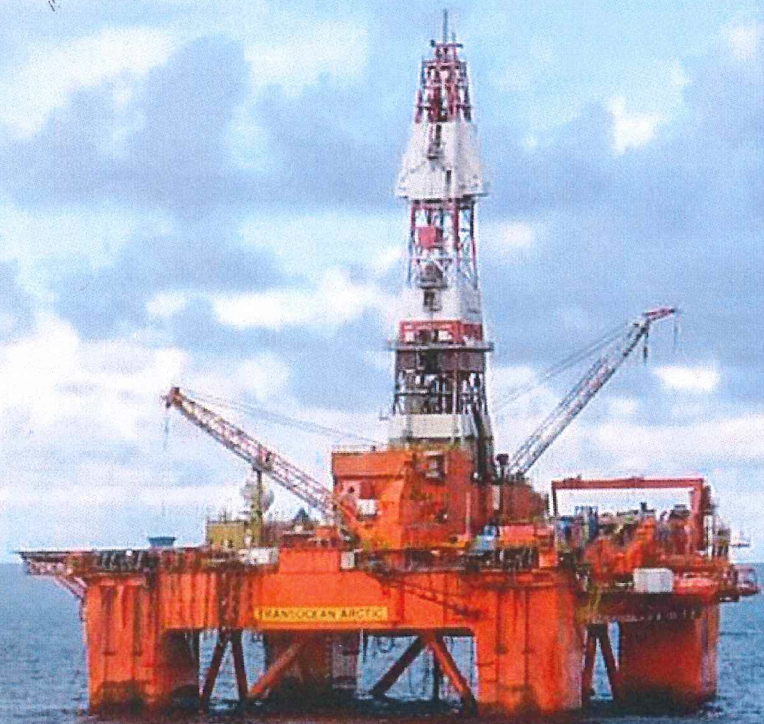




WELLESLEY
PETROLEUM

Relinquishment report

PL 1044




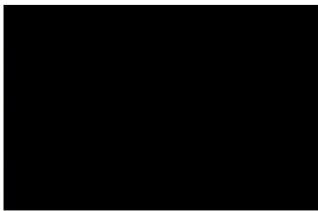
<i>Revision:</i>	<i>Date:</i>	<i>Prepared by:</i>	<i>Approved by:</i>
00	04.02.2022		

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1 License history

PL1044 was awarded in the APA 2019 licensing round on February 14th, 2020, to Wellesley Petroleum AS (operator, 50%), Equinor Energy AS (30%) and Petoro AS (20%). The license is located on the Heimdal Terrace and covers an area of 75.183 km² within blocks 25/4.

The PL1044 work commitment was to obtain and reprocess modern 3D seismic data, perform geological and geophysical studies and make a Drill or Drop decision within 2 years (Table 1.1). The license work obligations have been fulfilled. The workprogramme and decision gates for PL1044 are presented in Table 1.1

Table 1.1 PL1044 License work programme and decision gates

Work obligation	Decision	Task status	Expiry date
Acquire and reprocess modern 3D seismic and G&G studies		Completed	
	Decision to drill	Completed	14.02 2022
Drill exploration well			
	(BoK) Decision to concretize	N/A	14.02 2024
Conceptual studies			
	(BoV) Decision to continue	N/A	14.02 2026
(PDO) Prepare a plan for development			
	(PDO) Submit plan for development	N/A	14.02 2027
	Decision to enter extension period	N/A	14.02 2027

During the duration of the license, the following Exploration Committee and Management Committee meetings took place.(Table 1.2)

Table 1.2 License meetings

Meeting	Date
EC/MC meeting #1	22.04.2020
EC work meeting	08.10.2020
EC/MC meeting #2	27.11.2020
EC/MC meeting #3	07.04.2020
EC/MC meeting #4	15.06.2020
EC/MC meeting #5	22.11.2021

Reason for relinquishment

After an extensive review of the prospectivity of the Jurassic stratigraphic interval, it has been unanimously agreed by the Joint Venture to drop the licence as no drill-able prospect was identified within the acreage. The main reason for this is that the volume potential together with the associated risk for the identified prospect is considered to be too small within the license acreage. The three main prospects identified, Lukla, Phortse and Pangboche, are all dependent on up dip fault seal and the seal potential needed to build the required columns for each prospect to be commercially viable is considered limited, despite the attempt to de-risk through a significant work programme. The main prospect in the APA 2019 application, the Gokyo Prospect has seen a significant downgrade both in size and risk based on the large improvement of seismic quality from the 2020 seismic reprocessing and is also evaluated to be below the economical threshold. .

The extensive work programme did not sufficiently de-risk any of the additional identified leads either.

2 Database

2.1 Seismic data

The common seismic database in PL 1044 consists of the three surveys listed in Table 2.1 and with the areal coverage shown in Fig. 2.1 The APA 2019 application was mostly based on the PGS16M01-15917VIK survey. As part of the license work programme, this survey was reprocessed by WesternGeco together with NH9603 for multi-Azimuth processing and EL8601 was used for infill of the acquisition hole underneath the Heimdal Platform. The area outlined in blue on the map in Fig. 2.1 is the fully reprocessed area, while the area outlined in red (following the license boundary) is the area included in the license approved database.

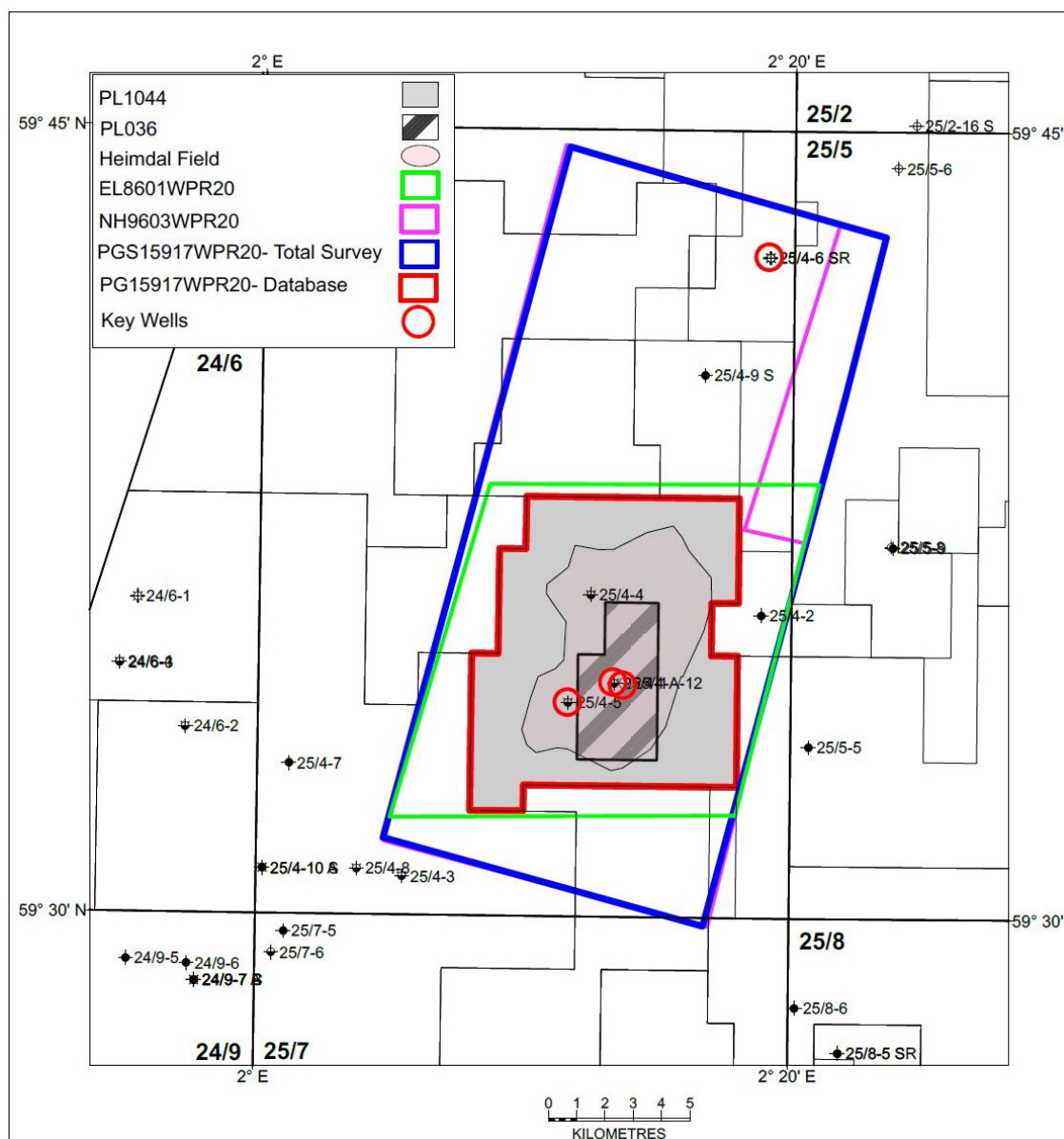


Fig. 2.1 Seismic Database

The multi-Azimuth survey WP20M01 (combined PGS15917WPR0 and NH9603WPR20) outline is the same as PGS15917WPR20-Total survey and PGS15917 WPR20-Database survey

The list of seismic surveys in the PL1044 seismic database is shown in Table 2.1

Table 2.1 Seismic database

Seismic survey	Year	Size, km ²	Owner / processor	Process	Datasets	Comment	Azimuth	NPDID	Omsattelig
PGS16M01-15917VTK Geostreamer	2018. Merged of NVG09, NVG10 and NH9603 to cover the acquisition holes.	299	PGS	PSDM	Full fold,offset data in time and depth	Operator and partner Equinor had access to 299 km ² of this survey which went into the full reprocessing project. The common database only covered the main prospective area of 90 km ² .	114°	NVG09: NA NVG10:7189	x
NH9603	1996	385 km ²	Equinor	PSTM	Full fold data in time	Vintage data for azimuth processing	18°	3785	
EL8601	1986	153 km ²	Total	PSTM	Full fold data in time	Vintage data for infill underneath the Heimdal Platform	90°	2824	
WP20M01	2020	90 (299) km ²	Wellesley/ Western/ Geco	PSDM MultiAzimuth based on PGS15917WPR20 and NH9603WPR0	Time:Full (0-35)	90 km ² is included in the common database, however, 299 km ² is the full reprocessing area		Merge (7189, 3785)	
PGS15917WPR20	2020	90 (299) km ²	Wellesley/ Western/ Geco	PSDM	Time:Full (0-35),+Angle 0-15, 15-30, 30-45, Gathers	90 km ² is included in the common database, however, 299 km ² is the full reprocessing area	114°	NVG09: NA NVG10:7189	
NH9603WPR20	2020	276 km ²	Wellesley/ Western/ Geco	PSDM	Time:Full (0-35),+Angle 0-15, 15-30, 30-45, Gathers		18°	3785	
EL8603WPR0	2020	153 km ²	Wellesley/ Western/ Geco	PSDM	Time:Full (0-35),+Angle 0-15, 15-30, 30-45, Gathers		90°	2824	

2.2 Well data

The common well database for the license is presented in Table 2.2

Table 2.2 Common Well database

Well	Year	Field	Petrophysics	Depth conversion	Sampling and New Biostrat	Old Biostrat	Well tie	NPDID
25/2-13	1990	Lille Frøy	x		x			1459
25/4-1 *	1972	Heimdal Deep	x	x	x		x	359
25/4-A-12 *	1993	Heimdal Deep	x	x	x		x	2130
25/4-5 *	1981	Heimdal Deep	x	x	x	x	x	201
25/4-6S *	1991	Vale	x	x	x	x	x	1703
25/5-1	1987	Frøy	x			x		884
25/5-2	1989	Frøy	x			x		1346
25/5-3	1990	Skirne	x			x		1488
25/5-4	1991	Byggve	x			x		1691
25/5-7	2001	Atla	x		x			6423
25/8-7	1995		x			x		2612
5/8-9	1997				x	x		2988

Wells marked with * are key wells for the prospect evaluation and are also highlighted in Fig. 2.1

3 Geological and geophysical studies

A number of internal and external studies has been carried out to address the geological and geophysical understanding of the license prospectivity. An overview of these studies are given below.

Seismic reprocessing

The seismic broadband survey PGS16M01-15917VIK was used in the APA 2019 application and all prospects were evaluated based on this survey. However, all prospects were defined as downthrown fault traps and thereby dependent on the presence of effective fault seals and to derisk this element, improved seismic quality was required. WesternGeco carried out a new targeted PSDM processing of the survey with focus on the deeper Jurassic sequence at about 3-4 second. To further improve illumination, signal to noise and velocity estimation the NH9603 survey with a different azimuth was include in the processing. It was also important to understand the area underneath the Heimdal Platform and by combing the three surveys, PGS16M01-15917VIK, NH9603 and EL8601 the gap in the data coverage was minimized. For the PSDM processing, tomography and FWI were used for velocity model building. The output from this processing project were new PSDM processed versions of the three surveys named EL8601WPR20, NH9603WPR20 and PGS15917WPR20 output in time for with full stack and subsequent three angle stacks from the contractor. A subset of gathers is also available, depth data is converted by the belonging velocity model. The WP20M01 survey is a Multi-Azimuth data set using the PGS15917WPR20 and NH9603WPR20 surveys as input and this dataset were the main dataset used in seismic re-interpretation of the license. A large uplift in seismic quality was achieved through the reprocessing project and particular the geological understanding of the crestal area underneath the Heimdal Field with the two crestal wells 5/4.-1 and 24/4-A-12 benefited largely by the enhancement in seismic quality

A detailed description of the processing project is given the processing report: *Final Processing Report WP20M01 PSDM Q25 North Sea.*

Seismic interpretation and evaluation

The main dataset used for for the mapping was the WP20M01 dataset which in most areas gave the the best imaging, although the NH9603WPR20 in places better imaged fault planes. The BCU, Heather Fm and Top Hugin Fm is easily tied to the key downflank wells, 25/4-5 and 25/4-6S and mapped with high confidence over the whole area. Base Sleipner Fm is also seen as a good marker in most of the area while Top Staffjord Gp is poor to moderate seismic marker in all wells. The large uplift in seismic quality gave a much better understanding of the structural picture and the tectonic evolution of the area. It became clear that the encountered hydrocarbon columns in the two crestal wells 25/4-1 and 25/4-A-12 was two separated accumulations. It was also clear that the two crestal wells both were drilled two faults and the observed thinning of the Jurassic stratigraphy could be explained by this. It became also clear that the fault bounding the main Prospect from the APA 2019 application, the Gokyo Prospect, to the south was not as extensive as mapped for the APA2019 application and this prospect was thereby downgraded both in size and with an increased risk

Automated Fault Tracking

As all prospects identified within the license were dependent on presence of an effective fault seal up-dip. It was very important to understand the geometry of the faults, what thrown they have and how they linked up and the presence of ramps. An automated fault tracking by the use of the GeoTeric AI High Quality Fault mapping logarithm was carried out to get guidance to better understand these issues and to understand the associated risks and led to an increased confidence level of the seismic interpretation and mapping.

Fault Seal Study

A study to investigate the fault seal potential of the main faults bounding the three largest prospects identified in the license, Pangboche, Lukla and Phortse prospects, was carried out by Badley Geoscience Limited using their TrapTester software and were very useful in estimating the right risk level for the main prospects. The study is presented in: *Fault Seal Analysis of key faults in three Prospects adjacent to the Heimdal Ridge, License PL1044, Block 5/4, North Sea*

Sedimentological Special study

An integrated study looking at sedimentology, stratigraphy, petrography and reservoir quality of cored middle Jurassic interval (Hugin/Sleipner Fm) from five wells (25/4-1, 25/4-2, 5/4-A-12, 25/4-6S and 25/2-13) drill in the Heimdal Ridge area. The study was performed by RPS Energy and included core description re-sampling of biostrat and new analysis for petrography and chemical stratigraphy from core material from the from the five wells and the objective was to understand the depositional system to be able to better predict the reservoir quality in the prospects. The result is presented in the report: *Core description, depositional modelling petrography, reservoir quality analysis and stratigraphic correlation of wells on the Heimdal Ridge, NOCS*

Pressure study

An internal study was carried out by Wellesley Petroleum to understand the pressure distribution in the area and identify pressure barriers. The study also included an evaluation of the well test over the Hugin/Sleipner interval in well 25/4-1.

Basin modelling study

Wellesley Petroleum performed an in-house basin modelling, main focus was to investigate the effect the presence of faults seal could have on the migration of hydrocarbons.



4 Updated prospectivity

In the APA2019 application Wellesley Petroleum presented four prospects and one lead. These were the Gokyo, Phortse, Pangboche and Mong prospects defined at the Middle Jurassic Hugin/Sleipner fms level while Chola was an additional lead of Upper Jurassic age (and Fig. 4.1). The Gokyo Prospect having the largest risked volume potential within the license boundary was the main prospect in this evaluation. After the re-evaluation of the prospectivity based on the license work programme the Gokyo Prospect was downgraded, mainly due to an increased risk on the fault seal potential. A similar downgrade affected the Phortse and Pangboche prospects, while the Lukla, Pheriche and Tengboche were new opportunities defined on the new seismic (). The outline of the prospects are shown in Fig. 4.2 .

Table 4.1 APA 2019 Resource Potential

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 ⁶ Sm ³] (>0.00)			Gas [10 ⁹ Sm 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)						
Gokyo	P	Gas	2,70	6,90	12,20	2,40	5,80	9,80	0,22	79,0	Hugin & Sleipner / Middle Jurassic	3350	Alvheim	13
Phortse	P	Oil	3,40	6,70	10,80	1,70	3,40	5,40	0,26	54,0	Hugin & Sleipner / Middle Jurassic	3150	Alvheim	13
Pangboche	P	Gas	1,50	5,60	11,10	1,30	4,70	9,00	0,18	95,0	Hugin & Sleipner / Middle Jurassic	3850	Alvheim	10
Mong	P	Oil	0,80	1,70	3,00	0,40	0,90	1,50	0,26	98,0	Hugin & Sleipner / Middle Jurassic	3450	Alvheim	15
Chola	L	Gas	0,90	2,10	3,50	0,80	1,70	2,80	0,14	100,0	Heather / Upper Jurassic	3750	Alvheim	10

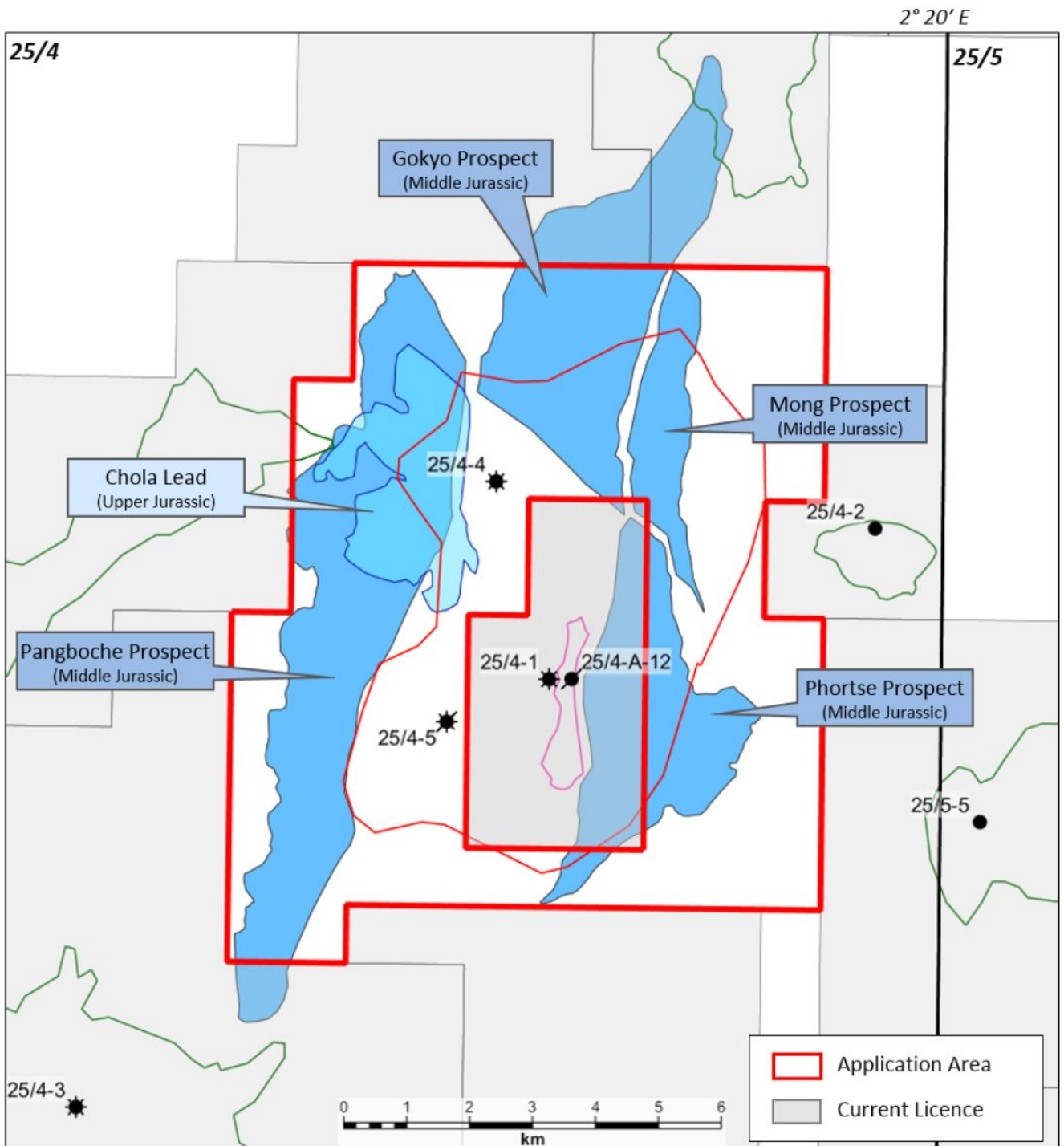


Fig. 4.1 APA2019 Prospectivity

Table 4.2 Re-evaluated PL1044 Resource potential

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 ⁶ Sm ³] (>0.00)			Gas [10 ⁹ Sm 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)						
Lukla Hugin/ Sleipner	P	Oil	1.20	1.90	2.70				0.39	12.0	Hugin/Sleipner Fm Middle Jurassic	3300	Alvheim	10
Lukla Stafjord	P		1.50	2.10	2.50				0.22	32.0	Stafjord	3550	Alvheim	10
Phortse Hugin/Sleipner	P		0.30	2.10	2.60				0.14	30.0	Hugin/Sleipner	3150	Alvheim	13
Phortse Stafjord	P										3400			
Gokyo	P		0.30	1.90	4.10				0.13	100.0	Hugin/Sleipner	3375	Alvheim	13
Pangboche	P		0.10	0.50	1.50				0.09	90.0	Hugin/Sleipner	3850	Alvheim	11
Tengboche	P									60.0	Hugin/ Sleipner	3650	Alvheim	9
Phakding	P									100.0	Stafjord	3680	Alvheim	15
Mong	P									98.0	Hugin/ Sleipner	3560	Alvheim	15
Phetche	P									30.0	Hugin/ Sleipner	3310	Alvheim	14
Chola	L		0.70	1.30	1.60				0.14	100.0	Intra Heather	3700	Alvheim	10

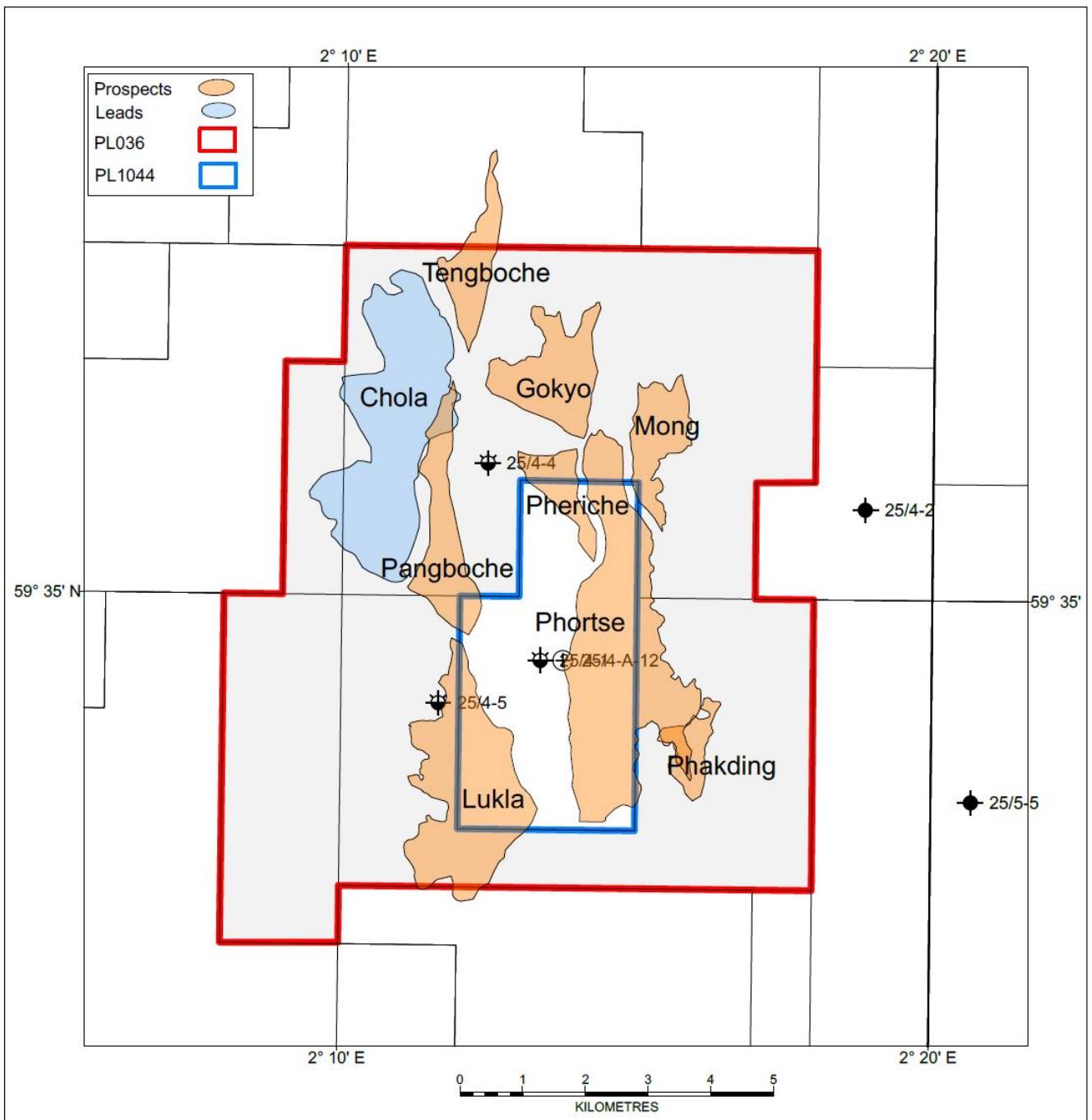


Fig. 4.2 PL1044 Prospectivity

Lukla Prospect

After the re-evaluation the Lukla Prospect is regarded as the main prospect in the license. It is defined as a hanging wall trap on the western side of the Heimdal High and updip of the 25/4-5 well, both the middle Jurassic Hugin/Sleipner Fm and the Statfjord Gp is considered a reservoir potential with independent closures at both levels (Fig. 4.3 and Fig. 4.4). The expected reservoir parameters for both reservoir are given in and . Well 25/4-5 encountered residual oil in the Hugin/Sleipner Fm an RFT sample containing oil and gas was recovered, hydrocarbons shows was also observed in the Statfjord Fm. Main risk for Lukla Prospect is the

sealing potential of the updip fault. Based on detailed fault study through the Badley Geoscience Trap analyser involving juxtaposition and SGR estimation, hydrocarbon columns of 230, 290 and 310 m for the P90, P50 and P10 cases respectively, were considered most viable. Unfortunately the P90 case is then located 100% outside PL1044, while on 5 % and 12 % of the P50 and P10 case respectively is inside PL 1044. For the Statfjord Fm about 35 % of the volume are inside PL 1044.

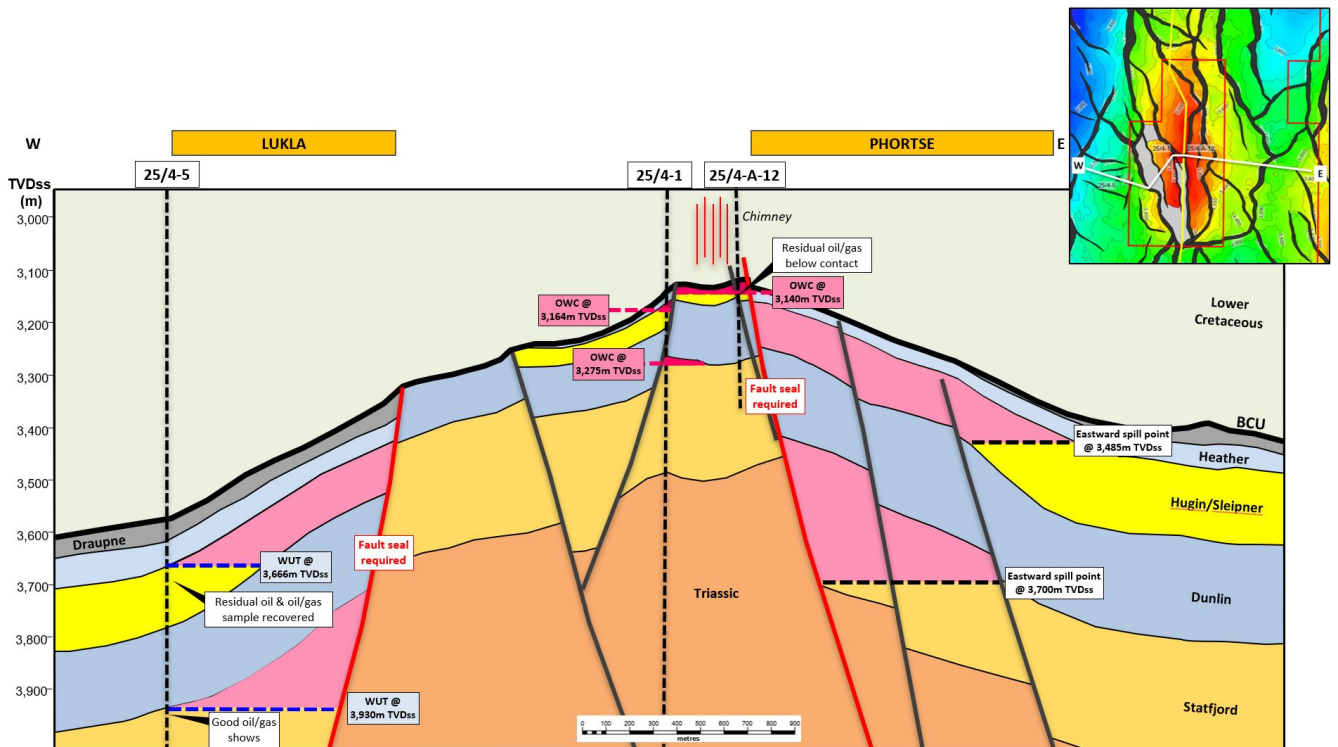


Fig. 4.3 Geological cross section through the Lukla and Phortse prospects

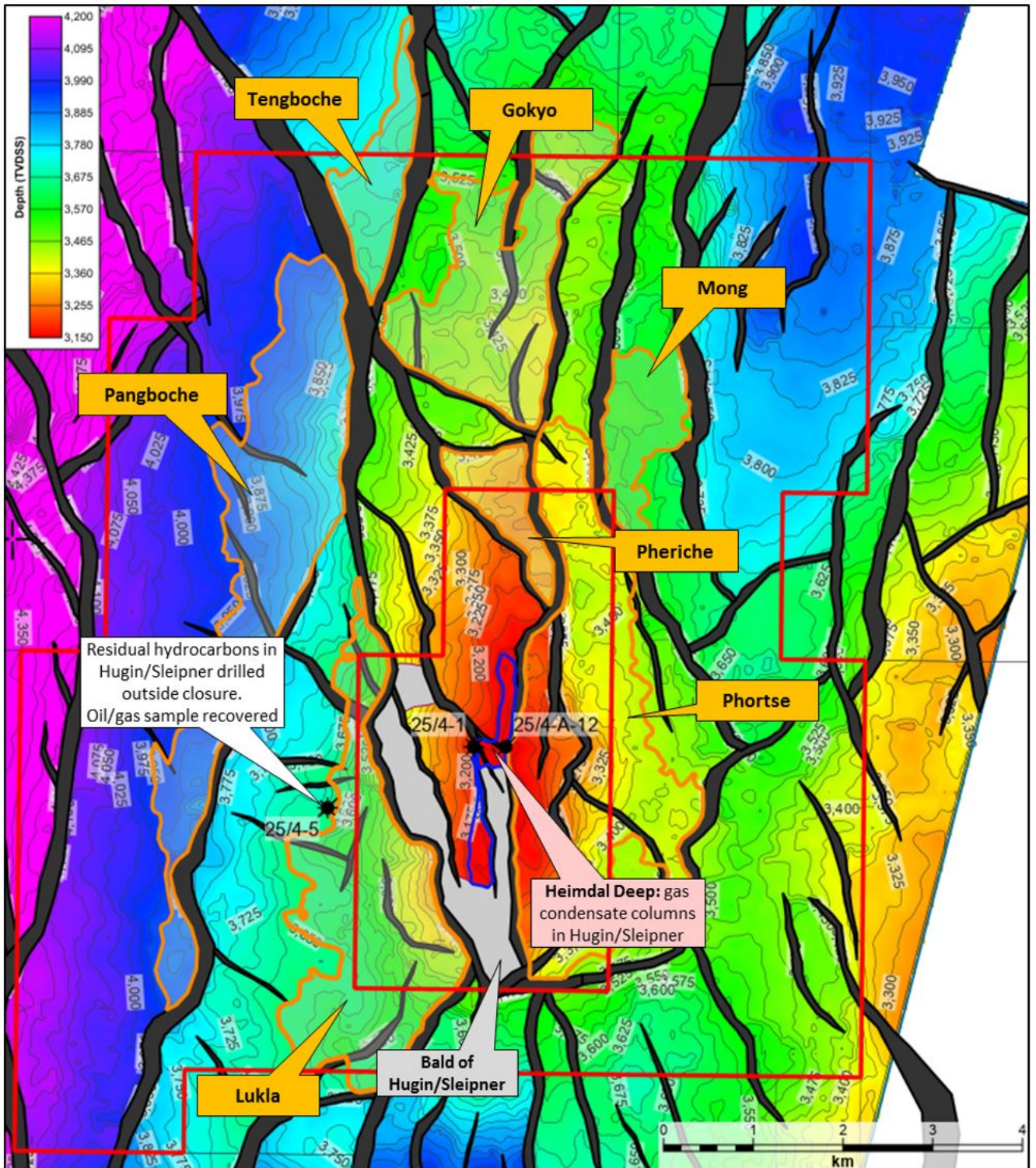


Fig. 4.4 Top Hugin Fm Depth map

Table 4.3 Lukla Hugin Fm Prospect Data (NPD Table 4)

Table 4: Discovery and Prospect data (Enclose map)									
Block	25/4	Prospect name	Lukla	Discovery/Prospect/Lead		Prospect 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	Wellesley Petroleum	Reference document	Relinquishment Report PL 1044			Assessment year	2021
This is case no.:		Structural element	Heimdal High	Type of trap	Hanging wall	Water depth [m MSL] (>0)	120	Seismic database (2D/3D)	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 ⁹ Sm ³] (>0.00)	2.70	5.34		10.65				
	Gas [10 ⁹ Sm ³] (>0.00)								
Recoverable resources	Oil [10 ⁹ Sm ³] (>0.00)	1.22	1.87		2.66				
	Gas [10 ⁹ Sm ³] (>0.00)								
Reservoir Chrono (from)	Bathonian	Reservoir litho (from)	Hugin	Source Rock, chrono primary	Thithonian	Source Rock, litho primary	Draupne	Seal, Chrono	Cretaceous
Reservoir Chrono (to)	Bajocian	Reservoir litho (to)	Sleipner	Source Rock, chrono secondary	Oxfordian	Source Rock, litho secondary	Heather	Seal, Litho	Shetland
Probability [fraction]									
Total (oil + gas + oil & gas case) (0.00-1.00)	0.39	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)	0.80	Trap (P2) (0.00-1.00)	0.90	Charge (P3) (0.00-1.00)	0.90	Retention (P4) (0.00-1.00)	0.60		
Parameters:									
	Low (P90)	Base	High (P10)	Comments					
Depth to top of prospect [m MSL] (> 0)			3300						
Area of closure [km ²] (> 0.0)		1.6	2.1	2.9					
Reservoir thickness [m] (> 0)			130						
HC column in prospect [m] (> 0)		230	270	310					
Gross rock vol. [10 ⁹ m ³] (> 0.000)	0.124	0.184	0.262						
Net / Gross [fraction] (0.00-1.00)	0.56	0.65	0.74						
Porosity [fraction] (0.00-1.00)	0.14	0.16	0.18						
Permeability [mD] (> 0.0)									
Water Saturation [fraction] (0.00-1.00)	0.30	0.40	0.45						
Bg [Rm3/Sm3] (< 1.0000)	0.43	0.47	0.50						
1/Bo [Sm3/Rm3] (< 1.00)									
GOR, free gas [Sm ³ /Sm ³] (> 0)									
GOR, oil [Sm ³ /Sm ³] (> 0)	528	650	800						
Recov. factor, oil main phase [fraction] (0.00-1.00)	0.45	0.35	0.25						
Recov. factor, gas ass. phase [fraction] (0.00-1.00)									
Recov. factor, gas main phase [fraction] (0.00-1.00)									
Recov. factor, liquid ass. phase [fraction] (0.00-1.00)									
Temperature, top res [°C] (>0)	120								
Pressure, top res [bar] (>0)	500								
Cut off criteria for N/G calculation	Vshl:0.5	Por: 0.1	3.						
				For NPD use:					
				Innrappr. av geolog-init:	NPD will insert value	Registrert - init:	NPD will insert value	Kart oppdatert	NPD will insert value
				Date:	NPD will insert value	Registrert Date:	NPD will insert value	Kart dato	NPD will insert value
								Kart nr	NPD will insert value

Table 4.4 Lukla Statfjord Group Prospect data (NPD Table 4)

Table 4: Discovery and Prospect data (Enclose map)									
Block	25/4	Prospect name	Lukla	Discovery/Prospect/Lead		Prospect 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	Wellesley Petroleum	Reference document	Relinquishment Report PL 1044			Assessment year	2021
This is case no.:		Structural element	Heimdal High	Type of trap	Hanging wall	Water depth [m MSL] (>0)	120	Seismic database (2D/3D)	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 ⁹ Sm ³] (>0.00)	3.80	7.00		12.70				
	Gas [10 ⁹ Sm ³] (>0.00)								
Recoverable resources	Oil [10 ⁹ Sm ³] (>0.00)	1.50	2.10		2.50				
	Gas [10 ⁹ Sm ³] (>0.00)								
Reservoir Chrono (from)	Rhaetian	Reservoir litho (from)	Statfjord	Source Rock, chrono primary	Thithonian	Source Rock, litho primary	Draupne	Seal, Chrono	M Jurassic
Reservoir Chrono (to)	Sinemurian	Reservoir litho (to)	Hegre	Source Rock, chrono secondary	Oxfordian	Source Rock, litho secondary	Heather	Seal, Litho	Dunlin
Probability [fraction]									
Total (oil + gas + oil & gas case) (0.00-1.00)	0.20	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)	0.50	Trap (P2) (0.00-1.00)	0.90	Charge (P3) (0.00-1.00)	0.80	Retention (P4) (0.00-1.00)	0.60		
Parameters:									
	Low (P90)	Base	High (P10)	Comments					
Depth to top of prospect [m MSL] (> 0)			3950						
Area of closure [km ²] (> 0.0)		3.8	3.9	3.9					
Reservoir thickness [m] (> 0)			178						
HC column in prospect [m] (> 0)		368	374	380					
Gross rock vol. [10 ⁹ m ³] (> 0.000)	0.350	0.420	0.490						
Net / Gross [fraction] (0.00-1.00)	0.30	0.40	0.50						
Porosity [fraction] (0.00-1.00)	0.13	0.15	0.17						
Permeability [mD] (> 0.0)									
Water Saturation [fraction] (0.00-1.00)	0.30	0.40	0.45						
Bg [Rm3/Sm3] (< 1.0000)	0.43	0.47	0.50						
1/Bo [Sm3/Rm3] (< 1.00)									
GOR, free gas [Sm ³ /Sm ³] (> 0)									
GOR, oil [Sm ³ /Sm ³] (> 0)	528	650	800						
Recov. factor, oil main phase [fraction] (0.00-1.00)	0.40	0.30	0.20						
Recov. factor, gas ass. phase [fraction] (0.00-1.00)									
Recov. factor, gas main phase [fraction] (0.00-1.00)									
Recov. factor, liquid ass. phase [fraction] (0.00-1.00)									
Temperature, top res [°C] (>0)	125								
Pressure, top res [bar] (>0)	625								
Cut off criteria for N/G calculation	Vshl:0.5	Por: 0.1	3.						
				For NPD use:					
				Innrappr. av geolog-init:	NPD will insert value	Registrert - init:	NPD will insert value	Kart oppdatert	NPD will insert value
				Date:	NPD will insert value	Registrert Date:	NPD will insert value	Kart dato	NPD will insert value
								Kart nr	NPD will insert value

Phortse Prospect

The Phortse prospect is defined as a hangingwall trap on the eastern side of the Heimdal High (Fig. 4.3 and Fig. 4.4) and similar to the Lukla prospect both the Hugin/Sleipner Fm as well as the Statfjord Fm are considered as reservoirs with separated hydrocarbon columns. The hydrocarbon columns and the associated risk were estimated in a similar way as for the Lukla Prospect. All details for the Prospect at Hugin Fm level is given in, no detailed volume estimation for the Phortse Statfjord Gp was carried out. Also for the Phortse Prospect the majority of the volumes are outside the PL1044 license boundary, 99 % for the P90 case, 30% of the P50 case and 38% of the P10 case.

Table 4.5 Phortse Hugin Fm Prospect data (NPD Table 4)

Table 4: Discovery and Prospect data (Enclose map)										
Block	25/4	Prospect name	Phortse	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	Wellesley Petroleum	Reference document	Relinquishment Report PL 1044			Assessment year	2021	
This is case no.:		Structural element	Heimdal High	Type of trap	Hanging wall	Water depth [m MSL] (>0)	120	Seismic database (2D/3D)	3D	
Resources IN PLACE and RECOVERABLE Volumes, this case		Main phase				Associated phase				
		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)	0.60	6.00		10.40					
	Gas [10 ⁶ Sm ³] (>0.00)									
Recoverable resources	Oil [10 ⁶ Sm ³] (>0.00)	0.27	2.10		2.60					
	Gas [10 ⁶ Sm ³] (>0.00)									
Reservoir Chrono (from)	Bathonian	Reservoir litho (from)	HuginSleipner	Source Rock, chrono primary	Thithonian	Source Rock, litho primary	Draupne	Seal, Chrono	Cretaceous	
Reservoir Chrono (to)	Bajocian	Reservoir litho (to)	Sleipner	Source Rock, chrono secondary	Oxfordian	Source Rock, litho secondary	Heather	Seal, Litho	Shetland	
Probability [fraction]										
Total (oil + gas + oil & gas case) (0.00-1.00)	0.14	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)	0.80	Trap (P2) (0.00-1.00)	0.90	Charge (P3) (0.00-1.00)	0.63	Retention (P4) (0.00-1.00)	0.30			
Parameters:										
		Low (P90)	Base	High (P10)	Comments					
Depth to top of prospect [m MSL] (> 0)				3110						
Area of closure [km ²] (> 0.0)		0.4		6.1	7.3					
Reservoir thickness [m] (> 0)				130						
HC column in prospect [m] (> 0)		66		307	315					
Gross rock vol. [10 ⁹ m ³] (> 0.000)		0.023		0.170	0.225					
Net / Gross [fraction] (0.00-1.00)		0.60		0.70	0.80					
Porosity [fraction] (0.00-1.00)		0.16		0.18	0.19					
Permeability [mD] (> 0.0)										
Water Saturation [fraction] (0.00-1.00)		0.30		0.40	0.45					
Bg [Rm3/Sm3] (< 1.0000)										
1/Bo [Sm3/Rm3] (< 1.00)		0.43		0.47	0.50					
GOR, free gas [Sm ³ /Sm ³] (> 0)										
GOR, oil [Sm ³ /Sm ³] (> 0)		528		650	800					
Recov. factor, oil main phase [fraction] (0.00-1.00)		0.45		0.35	0.25					
Recov. factor, gas ass. phase [fraction] (0.00-1.00)										
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)	120				Innrappr. av geolog-init:	NPD will insert value	Registrert - init:	NPD will insert value	Kart oppdatert	NPD will insert value
Pressure, top res [bar] (>0)	500				Dato:	NPD will insert value	Registrert Dato:	NPD will insert value	Kart dato	NPD will insert value
Cut off criteria for N/G calculation	Vshl 0.5	Por. 0.1	3.					NPD will insert value	Kart nr	NPD will insert value

Gokyo Prospect

This prospect was the main prospect defined in the APA 2019 application and is a hanging wall prospect located on the northern nose of the Heimdal High, updip of the Vale Field further north (Fig. 4.4). The re-evaluation of the -prospect based on the enhanced quality seismic revealed that the throw of the prospect bounding fault to the south was very small on the eastern tip and the sealing potential was considered to be limited. This prospect has seen a considerable downgrade both in volume and risk and no further detailed volume estimation has been carried out.

Chola Lead

Although the Chola structure is still considered as a lead, it has the largest volume potential of the remaining prospect within the license. The Chola lead is defined as a hard seismic anomaly within the Draupne or Heather package on the western flank of the Heimdal High. On the reprocessed seismic data the package is more clearly defined forming a mounded feature on a terrace with extra accommodation space. The main risk element is the presence of reservoir, the best analogue along strike is possible the Busta well 25/7-7 and well 25/7-2. Some deep erosion of the Jurassic package is observed updip of the Cola Lead (Fig. 4.3 and Fig. 4.4), however, the area is quite limited and probably not enough to support the substantial reservoir required for the Chola Lead.

Remaining Prospectivity

The remaining prospects, Pangboche, Tengboche, Phakding, Mong and Phetche are all defined as hanging wall traps with anticipated limited volume potential. No volume calculation and no risk estimation has been carried out for these prospects.

5 Technical evaluation

An extensive review of the prospectivity with most focus on the main risk elements, fault seal capacity and reservoir quality, has been carried out. The result of these studies is that the main prospect defined in the APA 2019 application, the Gokyo Prospect, has been downgraded both in volume and risk, while the Lukla Prospect, regarded as the main prospect in this license evaluation, is mostly located outside the license boundary. On the account of small volumes, no prospect were considered as attractive drilling candidates and it was apparent that no development realisation would result in a commercially viable or attractive outcome.

6 Conclusion

Phase 1 of the work program leading up to the Drill-or-Drop decision has been fulfilled by reprocessing the 3D PGS16M01-15917VIK and carried out geological studies with focus on the main risk elements. These studies concluded that the prospectivity within the license is not viable to pursue to a drilling phase and the license partnership unanimously recommended the relinquishment of PL1044.

7 References

WesternGeco 2021: Final Processing Report WP20M01 PSDM Q25 North Sea.

Badley Geoscience Limited 2021: Fault Seal Analysis of key faults in three Prospects adjacent to the Heimdal Ridge, License PL1044, Block 5/4, North Sea

RPS Energy 2021: Core description, depositional modelling petrography, reservoir quality analysis and stratigraphic correlation of wells on the Heimdal Ridge, NOCS