

Relinquishment report PL504CS

Relinquishment report PL504CS

1 INTRODUCTION	1
1.1 Licence owners	1
1.2 Award and work program	2
1.3 Pre-drill prospectivity	3
2 DATABASE	7
2.1 Seismic database	7
2.2 Well data	8
2.3 Special studies	11
3 EXPLORATION WELLS 25/8-17, 17A and 25/8-16S	13
3.1 Pre-drill prospect evaluation	13
3.2 Well 25/8-17 & 17A	16
3.2.1 Objectives	16
3.2.2 Well results	16
4 REMAINING PROSPECTIVITY	27

List of figures

1.1	PL504CS License outline	2
1.2	Geoseismic section	3
1.3	The Jetta Prospect and Brandhaug Lead location	4
1.4	Seismic lines and schematic cross sections trough the Jetta Prospect	5
2.1	Common seismic database	7
2.2	Common well database.....	10
3.1	Jetta Prospect.....	14
3.2	Seismic indications	15
3.3	Heimdal thickness map.....	15
3.4	Prognosed vs. actual stratigraphy in 25/8-17	19
3.5	Prognosed vs. actual stratigraphy in 25/8-17A	20
3.6	CPI Heimdal Formation 25/8-17	22
3.7	CPI Heimdal Formation 25/8-17A	24
4.1	Brandhaug map outline.....	27
4.2	North-South cross section across Brandhaug	28
4.3	West-East cross section across Brandhaug	29
4.4	Seismic line NVG10MDNR12PSDMPSpro across Brandhaug	30

List of tables

1.1	Expected recoverable reserves	5
2.1	Common seismic database	8
2.2	Common well database.....	9
2.3	Special geophysic study	11
3.1	Actual and prognosed well tops in 25/8-17	17
3.2	Actual and prognosed well tops in 25/8-17A	18
3.3	Recovered Fluid samples in 25/8-17	18
3.4	25/8-17 CPI Zonal Averages	23
3.5	25/8-17A CPI Zonal Averages	25



1 INTRODUCTION

1.1 Licence owners

The owners of the PL 504CS are:

- Det norske oljeselskap ASA 21,814 % (operator)
- Petoro ASA 46,043 %
- Fortis Petroleum Norway AS 20,000 %
- Spike Exploration Holding AS 12,143 %

Voting Rules : Majority and minimum 50%



1.2 Award and work program

The initial production license, PL 504 was awarded 23.01.2009 (APA2008) to a partnership consisting of Det norske (operator), Dana and Petoro. The work commitment in the license was linked to the Jette prospect and consisted of 2-1 exploration wells. The wells could be drilled either within this license, or in the neighboring license (027D). NPD has confirmed that the well commitments are fulfilled. Further commitments have been fulfilled by the Jette project. In order to separate out Jette Unit in PL504 in a separate entity, the remaining part of PL504 was awarded as PL504CS on 30.08.2013. PL 504BS was awarded as additional acreage to PL 504 in APA2009.

The license outline and nearby fields and discoveries are seen in Fig. 1.1. A geoseismic section across the Brandhaug prospect, Jette Field and the Eitri discovery (25/8-16S) are shown in Fig. 1.2

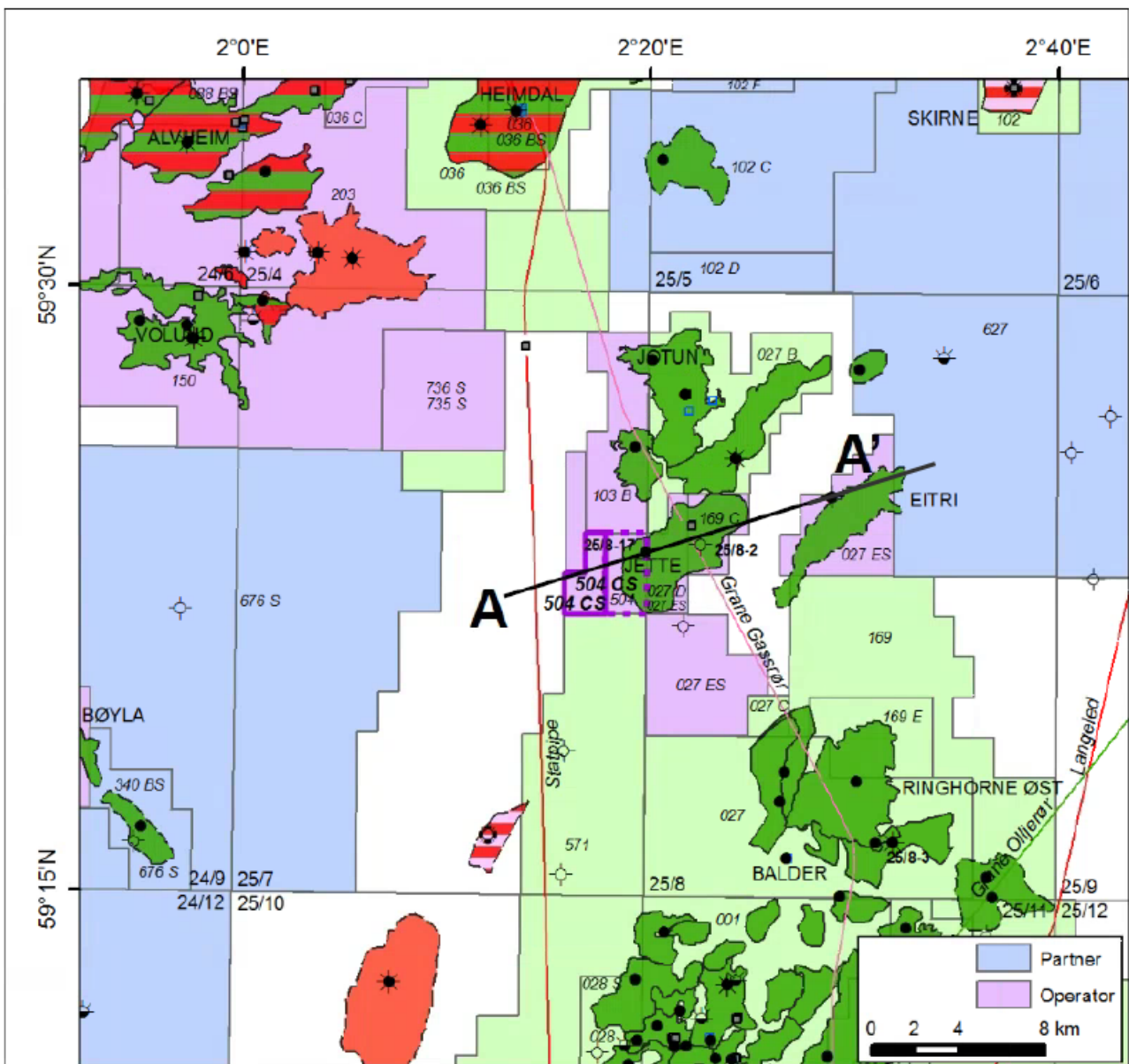


Fig. 1.1 PL504CS License outline. The figure shows the location of the PL504CS with position of geoseismic section indicated

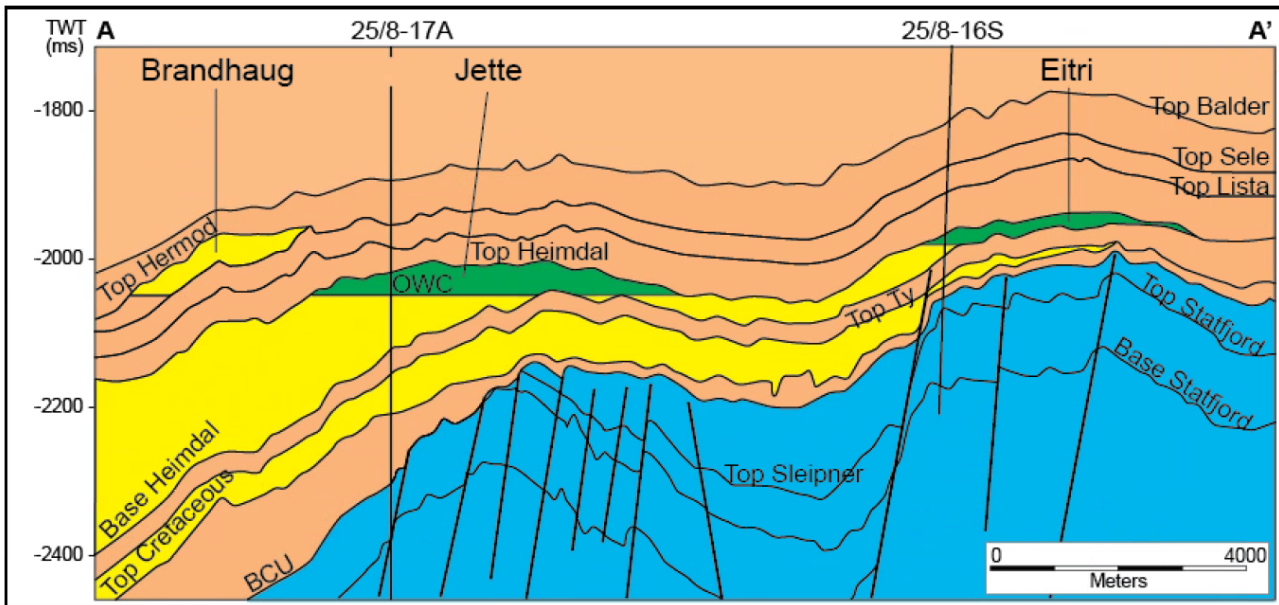


Fig. 1.2 Geoseismic section. Section across the Brandhaug prospect, Jette Field and the Eitri discovery.

1.3 Pre-drill prospectivity

The Jetta Prospect is located in the western part of Block 25/8 and eastern part of Block 25/7, and is a potential extension of the Jotun Tau. The prospect consisted of a target in the Paleocene Heimdal Formation, see Fig. 1.3 for the prospect location.

The Paleocene target was a combined stratigraphic and structural trap. Fig. 1.4 shows two schematic cross sections which illustrates the prospect concept.

The source rock for the prospect is Draupne shale, which is proven to be mature in the basin to the west. The main risk of the prospect was the probability of reservoir (P1= 0.63).

A table showing the expected recoverable reserves for the Jetta Prospect prior to drilling the 25/8-17 well, is presented below, in Table 1.1.

The prospect was called Jetta, but after the discovery the field was named Jette.

In addition, the Brandhaug prospect is partly located in PL504CS. The Brandhaug prospect has been an amplitude driven prospect in Hermod Formation. The Brandhaug prospect is now degraded from prospect to lead, this is described in Chapter 4 REMAINING PROSPECTIVITY.

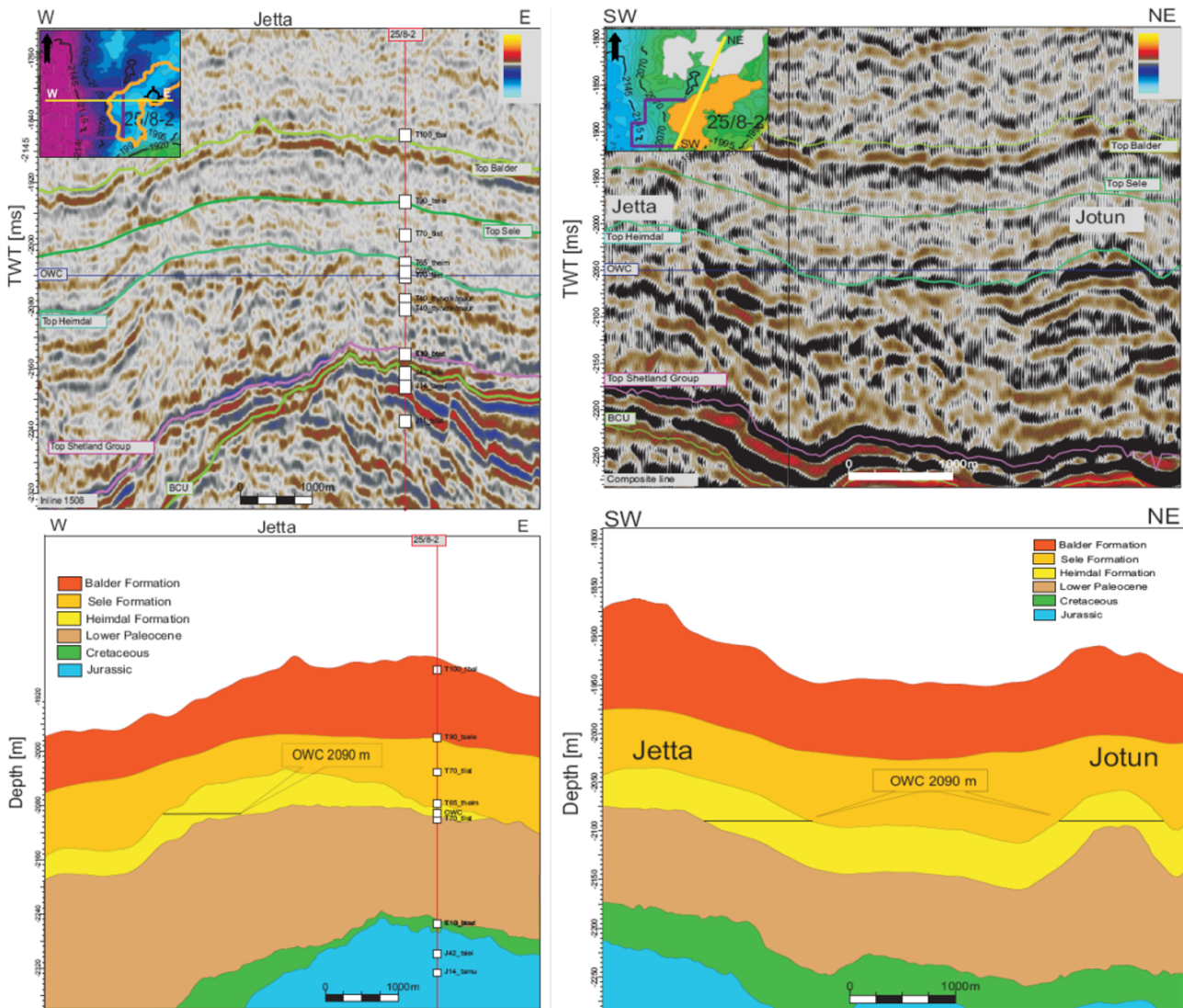


Fig. 1.4 Seismic lines and schematic cross sections through the Jetta Prospect

Table 1.1 Expected recoverable reserves

The Jetta prospect					GROSS RECOVERABLE RESERVES/RESOURCES					
					Low		Base		High	
CATEGORY	RESERVOIR LEVEL	HC	RF (%)	POS (%)	Oil (MSm ³)	Gas (GSm ³)	Oil (MSm ³)	Gas (GSm ³)	Oil (MSm ³)	Gas (GSm ³)
PROSPECTS										
Jetta	Heimdal Fm	Oil	40	45	4,69	0,35	7	0,52	8,83	0,66



2 DATABASE

2.1 Seismic database

The common seismic database is shown in Fig. 2.1 and in Table 2.1

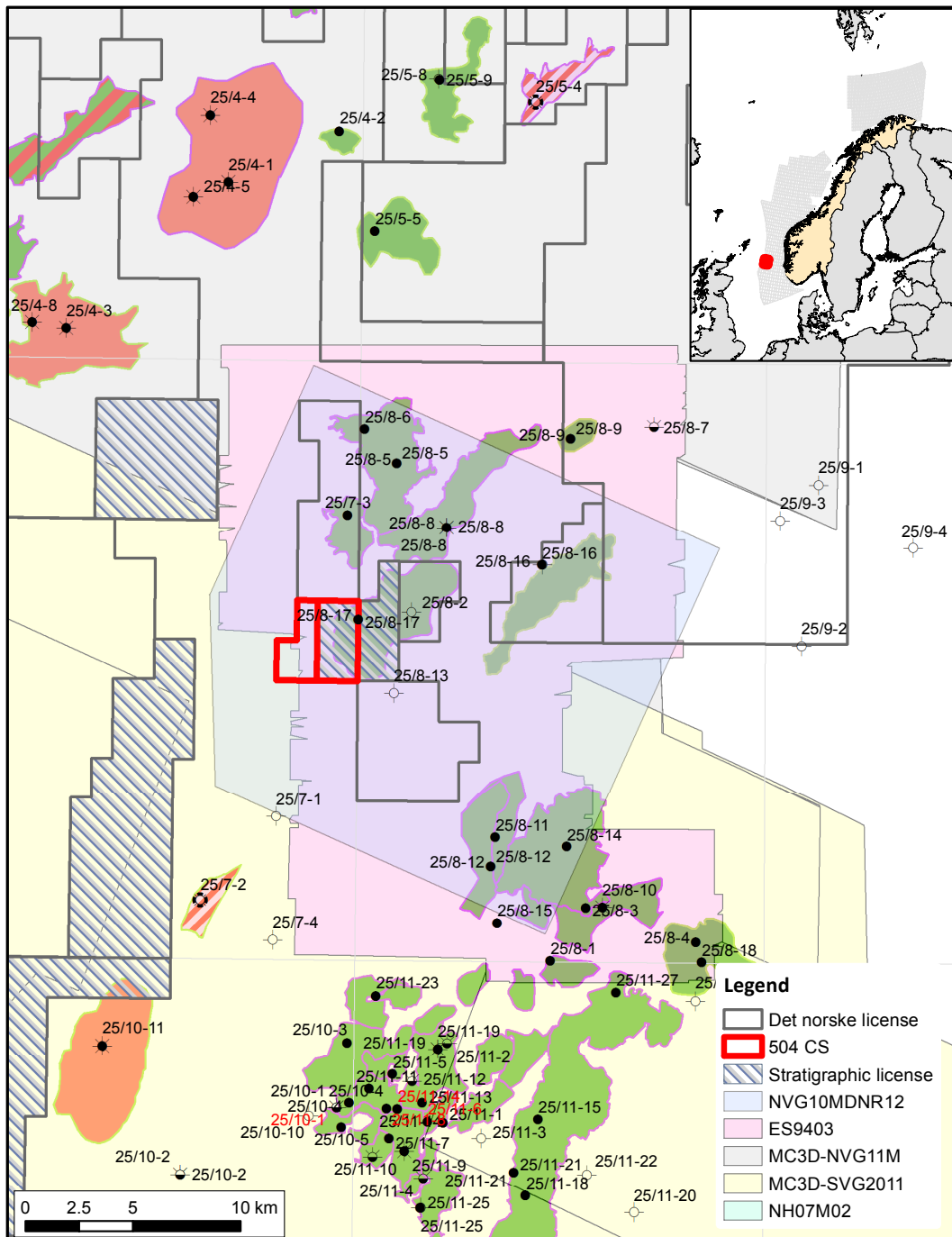


Fig. 2.1 Common seismic database



Table 2.1 Common seismic database

3D data	Year	Offset data	Latest reprocessing
NVG10MDNR12	2010	x	2012
MC3D-NVG11M (NVG10M)	2011 (2010)	x	
MC3D-SVG 2011	2011	x	
NH07M02	2007	x	
ES9403	1994	x	

2.2 Well data

The common well database is shown in Table 2.2 and in Fig. 2.2



Table 2.2 Common well database

Well	Field/Discovery, Name	Comp. Year	TD depth (MD) [m]	TD Formation/Group
24/6-1	Peik Field	1985	4937	Statfjord Formation
24/9-6	Not yet developed	1994	2255	Heimdal Formation
25/1-10	Dry	1988	4739	Ness Formatiom
25/4-1	Heimdal Field	1972	4060	Smith Bank Formation
25/4-3	Not yet developed	1974	2714	Jorsalfare Formation
25/4-5	Heimdal Field	1981	4355	Smith Bank Formation
25/4-6S	Vale Field	1991	4170	Statfjord Formation
25/5-5	Not yet developed	1995	2600	Våle Formation
25/7-1 ST2	Dry	1985	3592	Pre Devonian
25/7-2	Not yet developed	1990	4850	Slepiner Formation
25/7-3	Jotun Field	1995	2540	Tor Formation
25/7-4 S	Dry	1997	2560	Tor Formation
25/7-5	Not yet developed	1997	2736	Våle Formation
25/7-6	Not yet developed	2000	2250	Heimdal Formation
25/8-1	Ringhorne Field	1970	2606	Early Permian
25/8-2	Dry	1975	2578	Late Triassic
25/8-3	Balder Field	1981	1868	Paleocene
25/8-5 S	Jotun Field	1994	3395	Smith Bank Formation
25/8-6 T2	Jotun Field	1995	2577	Heimdal Formation
25/8-8A	Jotun Field	1995	2601	Heimdal Formation
25/8-8B	Jotun Field	1995	2510	Heimdal Formation
25/8-8S	Jotun Field	1995	2592	Heimdal Formation
25/8-B2	Jotun Field	1999	2552	Heimdal Formation
25/8-B04	Jotun Field	2000	5134	Heimdal Formation
25/8-B10	Jotun Field	2000	3297	Heimdal Formation
25/8-B21	Jotun Field	2002	2400	Heimdal Formation
25/8-B22	Jotun Field	2000	5642	Heimdal Formation
25/8-11	Balder Field	1997	1994	Statfjord Formation
25/8-12A	Balder Field	1999	2156	Heimdal Formation
25/8-12S	Balder Field	1999	2096	Smith Bank Formation
25/8-13	Dry	2001	2276	Smith Bank Formation
25/8-17A	Jette Field	2009	2495	Ty Formation
25/8-17	Jette Field	2009	2233	Ty Formation
25/8-16S	Eitri	2009	2550	Statfjord Formation

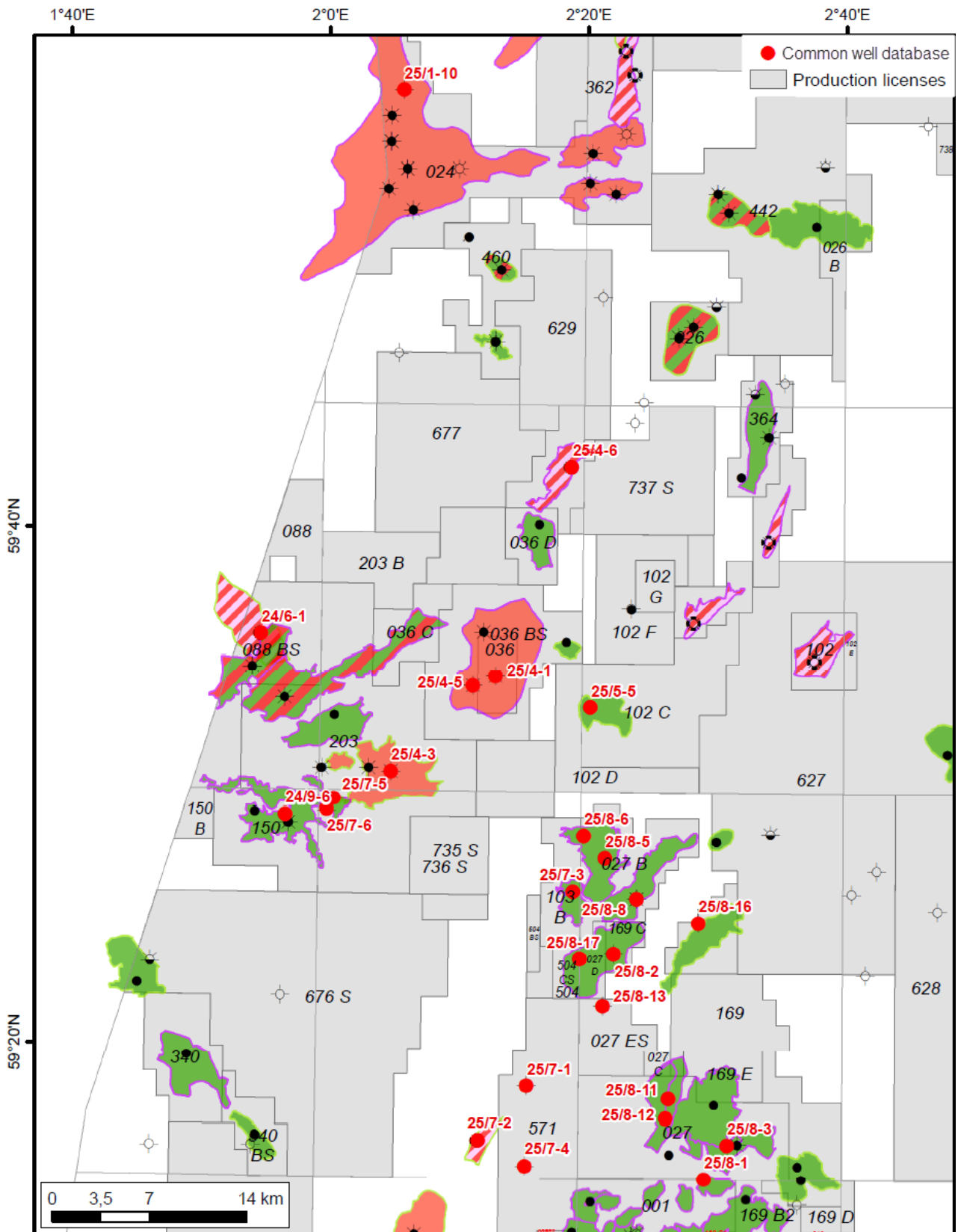


Fig. 2.2 Common well database



2.3 Special studies

A special studies has been carried out in-house to address the geological uncertainties of the PL504 and PL027D prospectivity. This study is:

Special geophysics study

An internal study has been done on special geophysics. Several cubes have been created to improve the prospect evaluation in the area. These cubes are listed in Table 2.3

Table 2.3 Special geophysic study. Created cubes

Cubes	Comment
Improved Near	PSDM reflectivity 0-12 degrees after PSPRO, noise removal and AVO conditioning
Improved Mid	PSDM reflectivity 12 -24 degrees after PSPRO, noise removal and AVO conditioning
Improved Far	PSDM reflectivity 24-35 degrees after PSPRO, noise removal and AVO conditioning
CI Near	PSDM relative inversion 0-12 degrees after PSPRO, noise removal and AVO conditioning
CI Mid	PSDM relative inversion 12 -24 degrees after PSPRO, noise removal and AVO conditioning
CI Far	PSDM relative inversion 24-35 degrees after PSPRO, noise removal and AVO conditioning
Intercept	Intercept with 2 terms approach
Gradient	Gradient with 2 terms approach
Relative P-impedance	Relative P-impedance
Relative S-impedance	Relative S-impedance
Relative AVO impedance	Relative AVO-class-strength-impedance. Relative AVO class 4 strength. Relative Extended Elastic Impedance, 22 degrees Chi, AVO-anomaly/Fluid anomaly.



3 EXPLORATION WELLS 25/8-17, 17A and 25/8-16S

According to the work commitment the licensees should within three years after award, drill two exploration wells, one of which was contingent. The licensees were free to drill wells in production license 027D or 504. Both the exploration wells 25/8-17 (Jetta prospect) and 25/8-16 (Eitri prospect) were drilled in PL027D during 2009. NPD has confirmed that the work commitment has been fulfilled. The 25/8-17 & 17A is the most relevant wells for the evaluation of the remaining prospectivity in the PL504CS and is therefore described in this report.

3.1 Pre-drill prospect evaluation

The Jetta Prospect is located in the western part of Block 25/8 and eastern part of Block 25/7, and is a potential extension of the Jotun Tau. The prospect consists of a target in the Paleocene Heimdal Formation. The Paleocene target is a combined stratigraphic and structural trap. Fig. 3.1 shows the Jetta outline on a Heimdal map and a W-E cross section, the reservoir is sealed by Sele Formation shales.

The prospect definition was supported by hydrocarbon indications. A dimming of top Heimdal was observed on near stack data, and the Jetta Prospect showed a clear brightening on the far stack data (Fig. 3.2).

The main risk of the prospect was the probability of reservoir ($P1 = 0.63$). Location of sand pinch out was a major risk, and net to gross was expected to decrease towards east (Fig. 3.3). The reservoir thickness was estimated to be 20 m (base case) with a porosity of 28 % (base case).

The source rock for the target level is the Heather and Draupne shales, which are proven to be mature in the basin to the west.

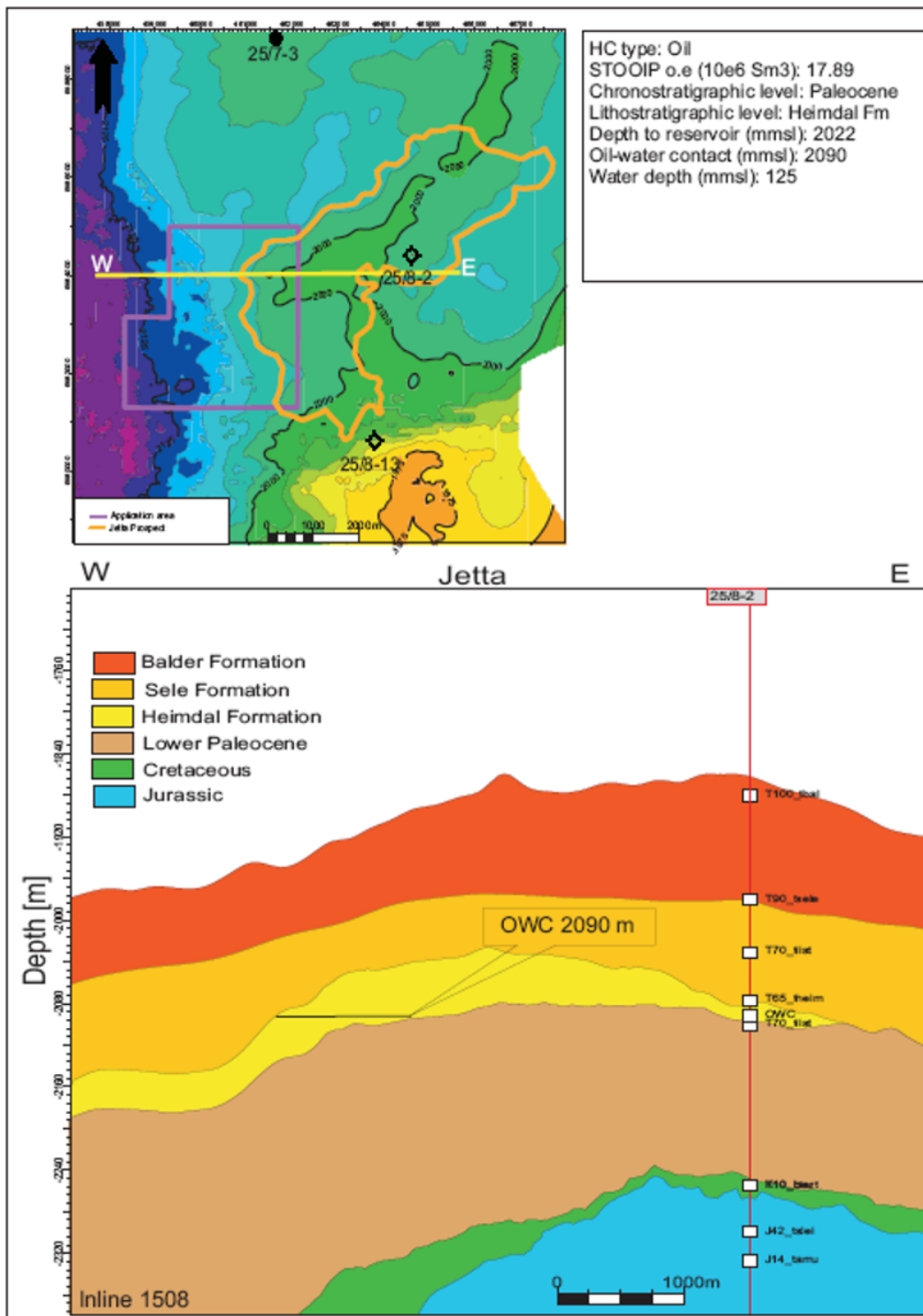


Fig. 3.1 Jetta Prospect. Top Heimdal depth map with the Jetta outline, and a W-E cross section

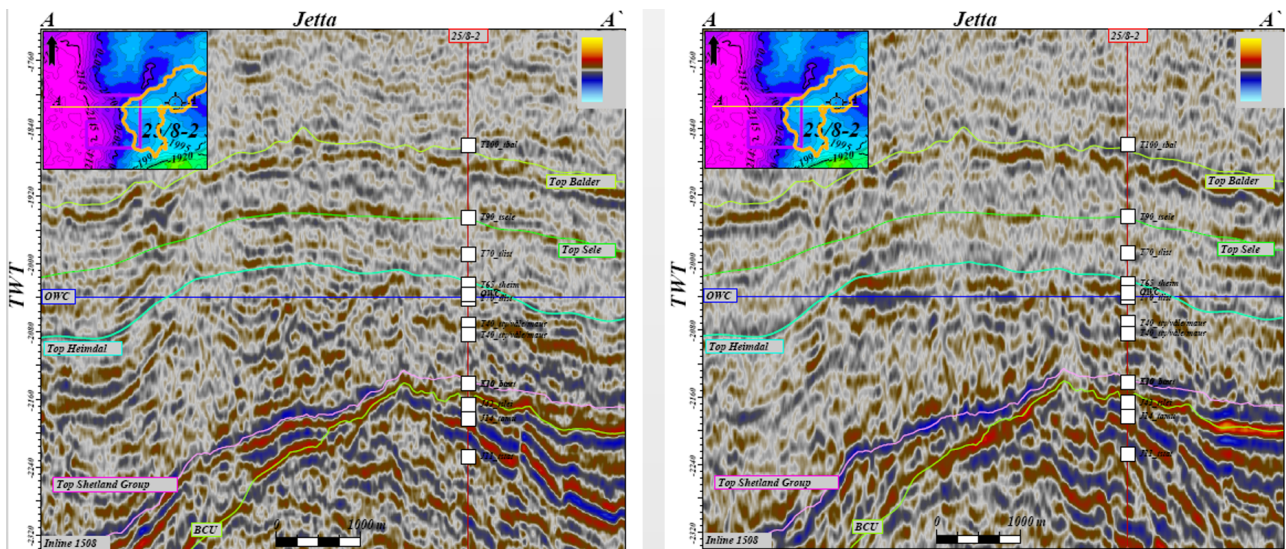


Fig. 3.2 Seismic indications. Inline 1508, near stack to the left and far stack to the right. A dimming of Top Heimdal is observed on near stack data, and the Jetta Prospect shows a clear brightening on the far stack data.

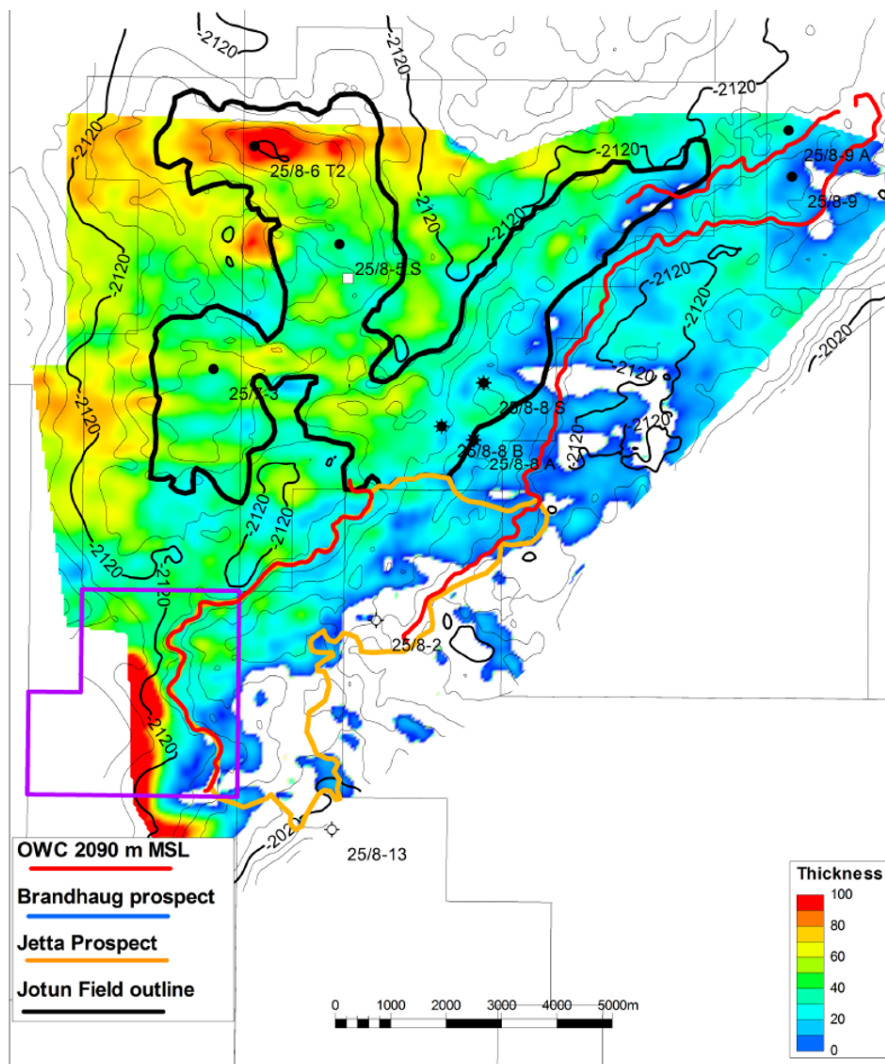


Fig. 3.3 Heimdal thickness map. Top Heimdal depth structure map draped with net Heimdal thickness. The outlines of Jotun, Jetta, Brandhaug and the OWC is shown on the map.



3.2 Well 25/8-17 & 17A

3.2.1 Objectives

Well 25/8-17 was planned to test the hydrocarbon and reservoir potential of the Paleocene Heimdal Formation. The prospect was a combined stratigraphic and structural trap, and was believed to be an extension of the Jotun Tau accumulation. The prospect was situated in Licence PL027D, PL 169C and PL 504. The well was a cost shared well between the licenses.

The well 25/8-17 was planned as a vertical well. In case of a discovery, a technical side track 25/8-17 T2 was planned for. The purpose of the side track was to core the Heimdal Formation. An alternative geological sidetrack was decided instead of this technical sidetrack, and the well was registered as 25/8-17A.

The well objectives were:

1. To carry out all operations in a safe and cost efficient manner without:
 - Causing any injury or ill health to any personnel involved;
 - Creating any damage to the environment.
2. To investigate the hydrocarbon potential in the primary target.
3. Fullfil NPD's regulations for data acquisition.
4. In case of discovery:
 - Plug back and drill sidetrack.
 - Core the reservoir section.
 - Perform logging with an extensive wireline logging suite
 - Option to drill a geological sidetrack to establish contacts.

3.2.2 Well results

The PL 027D Licence took over the drilling rig Bredford Dolphin at 01 October 2009 from VNG Norge at Cyclops location in PL270. The rig arrived at the 25/8-17 Jetta location 02 October 2009, and the well was spudded on 09 October 2009 at 22:00 hrs. The rig proceeded to drill the sidetrack, 25/8-17A, the 29 October 2009, and went off license on 15 November 2009.

The well was drilled as a vertical well to a total depth of 2233 m MD / 2232.7 mTVD RKB. TD was set in Ty Formation. Maximum deviation was 1.51 degrees.

The target of the Heimdal formation was penetrated at 2077.0 m MD RKB (2051.7 m TVD MSL) and the upper sands were found hydrocarbon bearing. Analysis of logs, formation pressures and fluid samples give a most likely oil water contact (OWC) at 2086 m TVD MSL. However, the water gradient from the deeper water bearing sands in Heimdal crosses the oil gradient at 2091 m TVD MSL.

It was decided to drill a side track (25/8-17 A) towards the North East, in an attempt to find thicker Heimdal sands. The well was subsequently plugged back and sidetracked.

Table 3.1 shows the prognosed formation tops and actual penetration depths in 25/8-17, and Table 3.2 the same in 25/8-17A. Fig. 3.4 illustrate the actual lithology and stratigraphy in addition to the



planned and actual casing points for the reservoir section and the overburden in 25/8-17, and Fig. 3.5 shows the same for 25/8-17A.

Shows were seen in sandstone in the Heimdal Formation IN 25/8-17. The LWD resistivity/Density/Neutron data and increased gas readings with formation gas peaks (1.22/0.08% at 2097m MD and 0.52/0.10% at 2100m MD) confirmed that hydrocarbons were present. Maximum average gas was 0.7%. The samples recovered from the well is presented in Table 3.3.

Table 3.1 Actual and prognosed well tops in 25/8-17

Tops	Prognosis		Actual			Thickness (m)	High/Low (m)
	MD RKB (m)	TVD MSL (m)	MD RKB (m)	TVD RKB (m)	TVD MSL (m)		
Seabed	152	127.0	152	152.0	127.0	N/A	0.0
Nordland Group	152	127.0	152	152.0	127.0	860.9	0.0
Utsira Formation	461	436.0	453	453.0	428.0	560.0	-8.0
Hordaland Group	1009	984.0	1013	1012.9	987.9	893.8	3.9
Lark Formation	1009	984.0	1013	1012.9	987.9	152.0	3.9
Skade Formation	1136	1111.0	1165	1164.9	1139.9	34.5	28.9
Base Skade Fm.	1206	1181.0	1199.5	1199.4	1174.4	24.5	-6.6
Grid Formation	1253	1228.0	1224	1223.9	1198.9	98.0	-19.1
Horda Fm.(Base Grid)	1306	1281.0	1322	1321.9	1296.9	595.8	15.9
Rogaland Group	1902	1877.0	1918	1917.7	1892.7	N/A	15.7
Balder Formation	1902	1877.0	1918	1917.7	1892.7	79.0	15.7
Sele Formation	1978	1953.0	1997	1996.7	1971.7	36.0	18.7
Lista Formation	2028	2003.0	2033	2032.7	2007.7	44.0	4.7
Heimdal Formation	2067	2042.0	2077	2076.7	2051.7	130.5	9.7
Ty Formation	2204	2179.0	2207.5	2207.2	2182.2	N/A	3.2
Top Chalk	2357	2332.0	N/A	N/A	N/A	N/A	Not Drilled
TD	2360	2335.0	2233	2232.7	2207.7	N/A	-127.3



Table 3.2 Actual and prognosed well tops in 25/8-17A

Tops	Prognosis		Actual				
	MD RKB(m)	TVD MSL(m)	MD RKB (m)	TVD RKB(m)	TVD MSL(m)	Thickness(m)	High/Low (+/-)(m)
Skade Fm	1165	1140	1158.5	1158.2	1133.2	31.2	-6.8
Base Skade Fm.	1200	1175	1190	1189.4	1164.4	31.1	-10.6
Grid Fm	1229	1203	1221.5	1220.5	1195.5	97.3	-7.6
Horda Fm.(Base Grid)	1328	1298	1320.5	1317.8	1292.8	601.6	-5.2
Rogaland Group	2369	1888	2379	1919.4	1894.4	N/A	-6.4
Balder Fm	2369	1888	2379	1919.4	1894.4	59.2	-6.4
Sele Fm	2534	1969	2521	1978.6	1953.6	36.6	-15.4
Lista Fm	2621	2015	2608	2015.2	1990.2	35.7	-24.8
Heimdal Fm	2672	2042	2694	2050.9	2025.9	70.8	-16.1
Lista Fm	N/A	N/A	2845	2121.7	2096.7	7,1	N/A
Ty / Vaale Fm	2847	2148	2858	2128.8	2103.8	N/A	-44.2
TD	2872	2165	2945	2178.6	2153.6	N/A	-11.4

Table 3.3 Recovered Fluid samples in 25/8-17

Sample ID #	Samples Depth (m)	Sample Pressure (psi)	Fluid Amount (l)	Fluid Type	Gas Amount (Cu/ft)
441	2094	1000	20.8	Oil	38.0
121	2094	1000	10.0	Oil	15.4

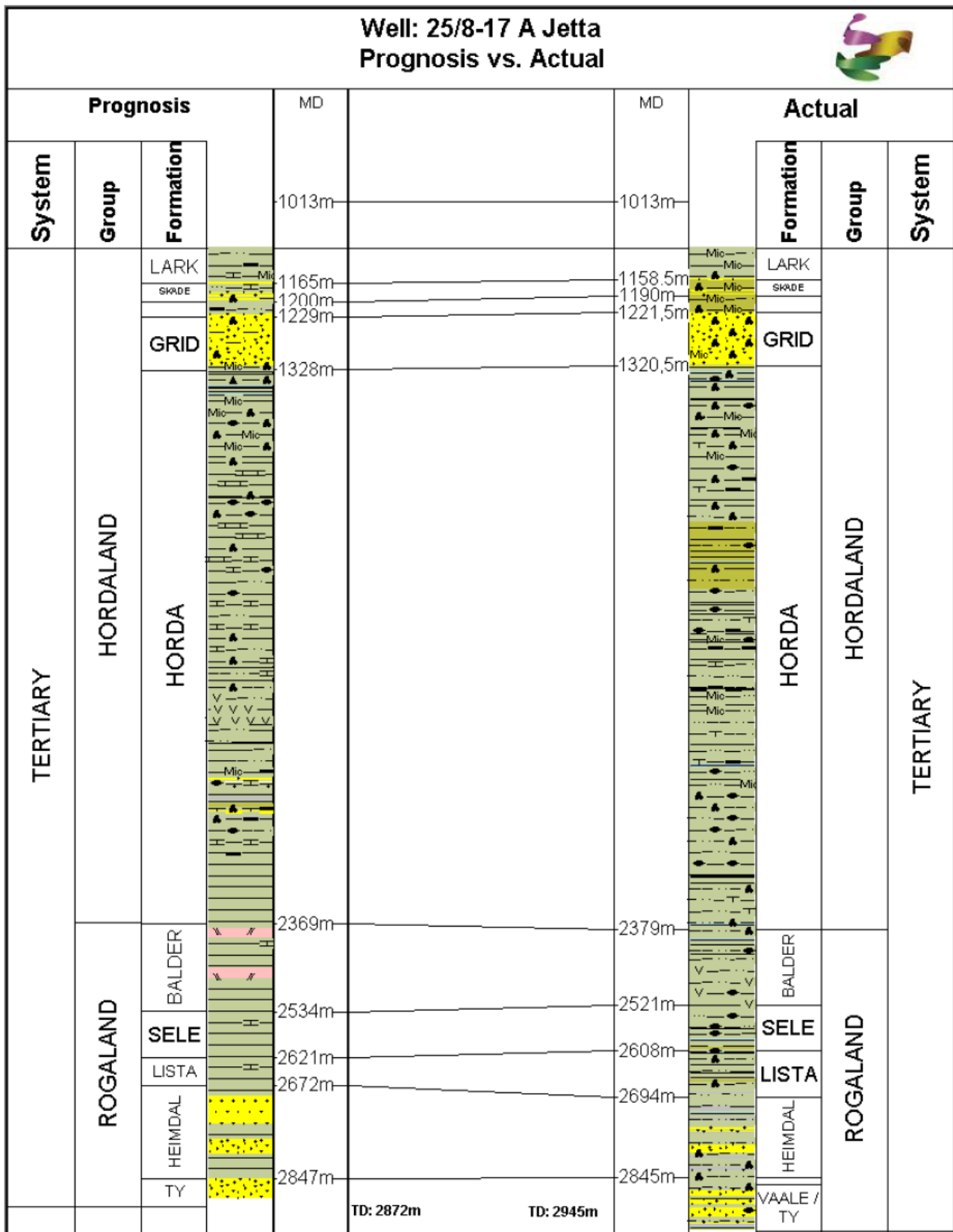


Fig. 3.5 Prognosed vs. actual stratigraphy in 25/8-17A



25/8-17

The target Heimdal formation was penetrated at 2077.0 m MD RKB (2051.7 m TVD MSL) and was found oil bearing. Heimdal formation can be subdivided into six different formations (Heimdal Z0 to Heimdal Z5).

Analysis of logs, formation pressures and fluid samples give a range in the oil water contact (OWC) from 2086 down to 2091 m TVD MSL. The water gradient from the deeper water bearing sands in Heimdal cross the oil gradient at 2091 m TVD MSL but the sample at 2085 m TVD MSL contains some formation water. Since the contact are located in a shaly, non reservoir interval this can not be determined exactly from the pressure data due to the possibility that this shaly interval is partly sealing. No contact can be defined from the logs but the oil down to (ODT) is 2086 m TVD MSL and water up to (WUT) is 2095 m TVD MSL.

The oil bearing sands in Heimdal Z1 and upper part of Heimdal Z2 are thin (each sand is between 3 and 1 m thick) but with excellent reservoir properties with an average porosity of 24%. The average oil saturation in the upper oil sand is 77 % and 50 % in the lower sand. A massive, water bearing sandstone are present in the lower part of Heimdal Z2, with the same reservoir properties as the thinner oil bearing sands above.

Plot of the CPI results for Heimdal formation are shown in Fig. 3.6. The zone average petrophysical parameters are shown in the table Table 3.4.

25/8-17A

The target Heimdal formation was penetrated at 2693.94 m MD RKB (2025.89 m TVD MSL). The Heimdal formation can be subdivided into six different zones (Heimdal Z0 to Heimdal Z5).

The hydrocarbons in the upper reservoir sand in Heimdal Z1 at 2752 m MD RKB (2050 m TVD MSL) is most likely gas. This is confirmed from the gas readings in this interval where the C1/C4 ratio is higher than the lower sand. The cuttings from the upper sand is described as a silty sandstone with higher shale content than the oil filled sand below. This can explain that the density/neutron separation is greater in the lower sand even if the upper sand contains much lighter hydrocarbons. No GOC can be defined from the logs, but the well results agree with the GOC at 2057 m TVD MSL in the area.

Heimdal Z2 contains a thick oil bearing massive sandstone with excellent reservoir properties with porosity up to 30 % and oil saturation of about 78%. Heimdal Z3 to Heimdal Z5 contains mainly shale with thin sand layers. The reservoir quality in these thin sands are low and the porosity in the net sand is slightly above 15% which is the cut-off used for calculation of net sand intervals. No net pay are calculated in these sands, the reason for this is the low reservoir quality and not the fluid content in the free pore spaces.

No additional information about the OWC can be defined from this well. In the main well a range in OWC from 2086 to 2091 m TVD MSL are defined.

Plot of the CPI results from the Heimdal formation are shown in Fig. 3.7. The zone average petrophysical parameters are shown in the table Table 3.5.

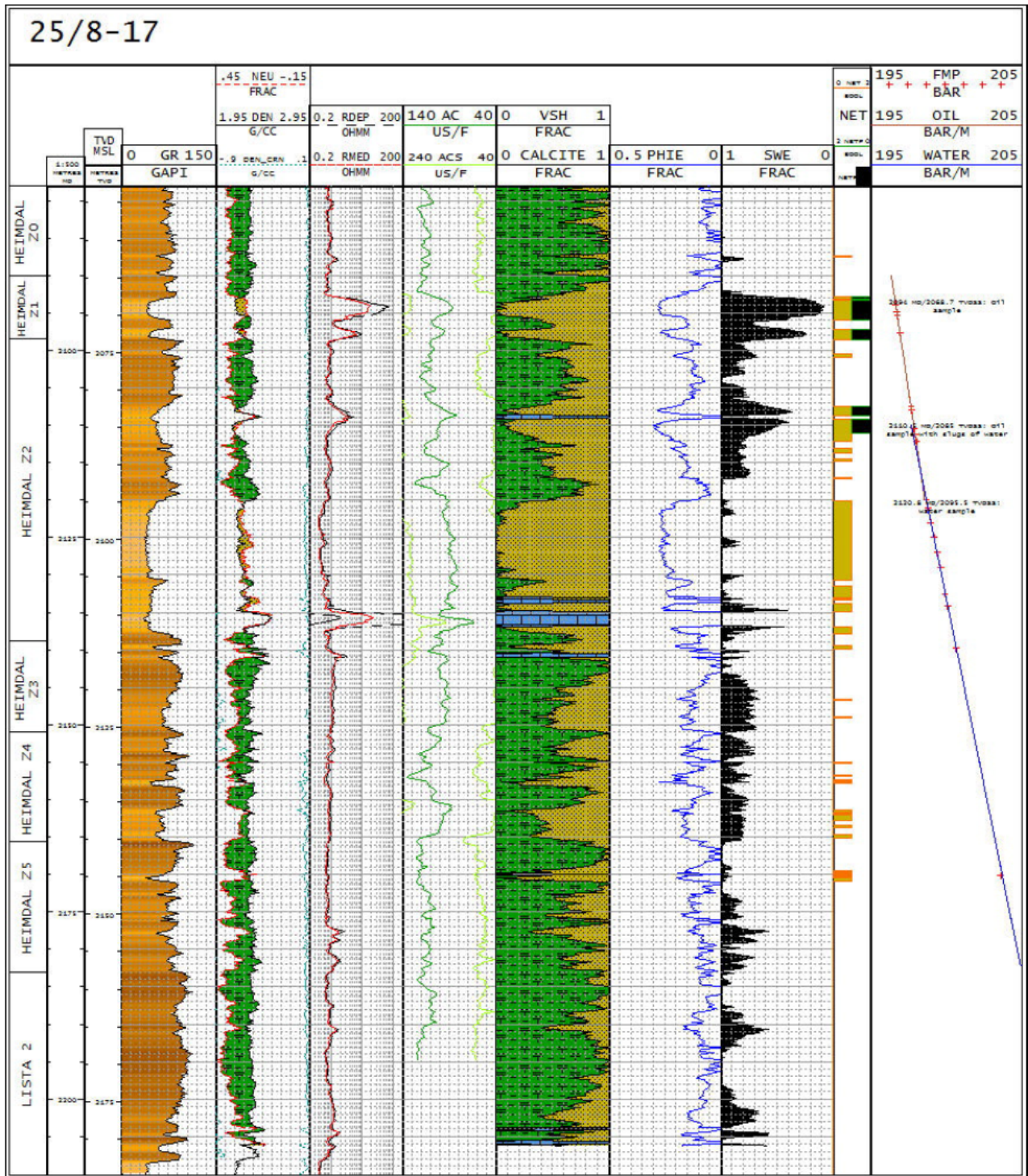


Fig. 3.6 CPI Heimdal Formation 25/8-17



Table 3.4 25/8-17 CPI Zonal Averages. NET Criteria: PHIE>0.15, VSH<0.4, NETPAY Criteria: NET + SWE<0.65

Averaging depth reference: m TVD MSL

	Heimdal Fm	Heimdal Z0	Heimdal Z1	Heimdal Z2	Heimdal Z3	Heimdal Z4	Heimdal Z5
Top (m MD RKB)	2077.42	2077.42	2090.00	2098.53	2138.78	2151.00	2165.60
Bottom (m MD RKB)	2183.00	2090.00	2098.53	2138.78	2151.00	2165.60	2183.00
Top (m TVD MSL)	2052.13	2052.13	2064.70	2072.23	2113.47	2125.69	2140.28
Bottom (m TVD MSL)	2157.68	2064.70	2073.23	2113.47	2125.69	2140.28	2157.68
Thickness (m TVD)	105.55	21885	19572	40.24	44896	42169	17.39
NET	28.95	0.15	45748	20.28	0.76	21582	0.91
NETG	0.27	0.01	0.50	0.50	0.06	0.18	0.05
NETP	11505	0	45748	42280	0	0	0
NPTG	0.07	0	0.50	0.08	0	0	0
NET Interval:							
VSH AR-TW (Frac.)	0.14	0.39	0.13	0.12	0.23	0.30	0.22
PHIE AR-TW (Frac.)	0.23	0.15	0.24	0.24	0.19	0.19	0.17
SWE AR-TW (Frac.)	0.75	1	0.23	0.84	0.86	0.80	0.97
NET PAY Interval:							
VSH AR-TW (Frac.)	0.14		0.13	0.14			
PHIE AR-TW (Frac.)	0.25		0.24	0.25			
SWE AR-TW (Frac.)	0.34		0.23	0.50			

Conclusions

A thin gas cap and oil was proven, but with less reservoir thickness than expected in both well 25/8-17 and -17A.

Jetta is an extension of Tau (Jotun) with OWC (2091 m TVDSS) and GOC (2057 m TVDSS).

Good correlation between seismic pay-response in part of Jetta

Thick sand in both wells may be correlated through poor area

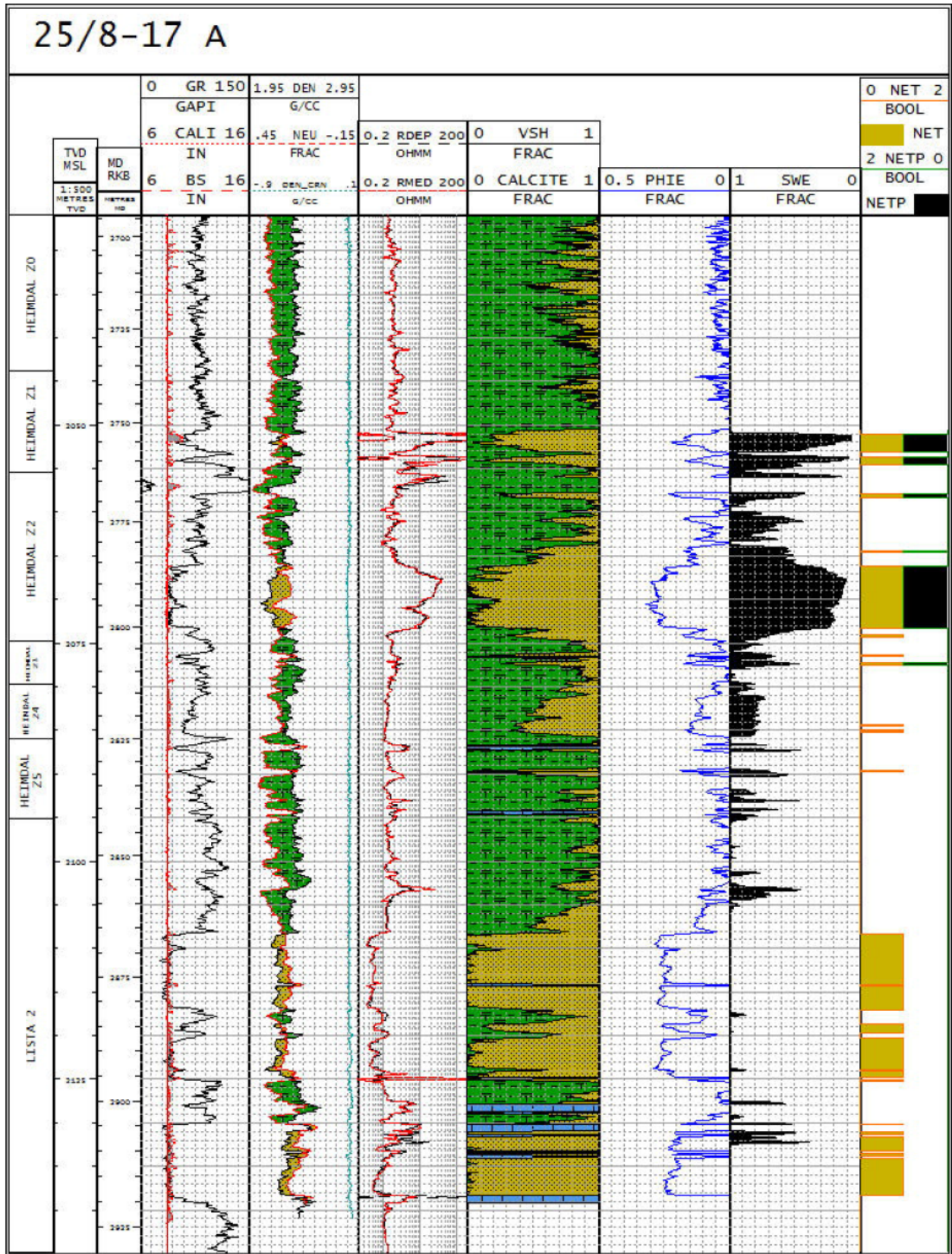


Fig. 3.7 CPI Heimdal Formation 25/8-17A



Table 3.5 25/8-17A CPI Zonal Averages

	Heimdal Formation	Heimdal Z0	Heimdal Z1	Heimdal Z2	Heimdal Z3	Heimdal Z4	Heimdal Z5
Top (m MD RKB)	2693.94	2693.94	2736.36	2762.78	2803.15	2812.96	2825.00
Bottom (m MD RKB)	2845.25	2736.36	2762.78	2803.15	2812.96	2825	2845.25
Top (m TVD MSL)	2025.89	2025.89	2043.80	2055.39	2074.73	2079.73	2085.99
Bottom (m TVDMSL)	2095.06	2043.80	2055.39	2074.73	2079.73	2085.99	2095.06
Thickness (m TVD)	69.17	17.91	11.59	19.34	4.99	6.27	9.07
NET	12.04	0	2.93	8.08	0.39	0.4	0.24
NETG	0.174	0	0.25	0.42	0.08	0.06	0.03
NETP	10.86	0	2.93	7.69	0.23	0	0
NPTG	0.157	0	0.25	0.40	0.05	0	0
<i>NET Interval:</i>							
VSH AR-TW (Frac.)	0.18		0.29	0.12	0.25	0.3	0.12
PHIE AR-TW (Frac.)	0.22		0.13	0.26	0.16	0.16	0.17
SWE AR-TW (Frac.)	0.25		0.22	0.22	0.58	0.79	0.72
<i>NET PAY Interval:</i>							
VSH AR-TW (Frac.)	0.16		0.29	0.11	0.30		
PHIE AR-TW (Frac.)	0.22		0.13	0.26	0.16		
SWE AR-TW (Frac.)	0.21		0.22	0.20	0.51		
NET Criteria: PHIE>0.15, VSH<0.4, NETPAY Criteria: NET + SWE<0.65 Averaging depth reference: m TVD MSL							



4 REMAINING PROSPECTIVITY

The PL504 CS operator has carried out an evaluation of the remaining prospectivity in the license and has evaluated one prospect, the Brandhaug prospect. The Brandhaug prospect is now degraded from prospect to lead.

The outline of the original prospect is seen in map view in Fig. 4.1 and in two cross sections going north-south Fig. 4.2 and west-east Fig. 4.3

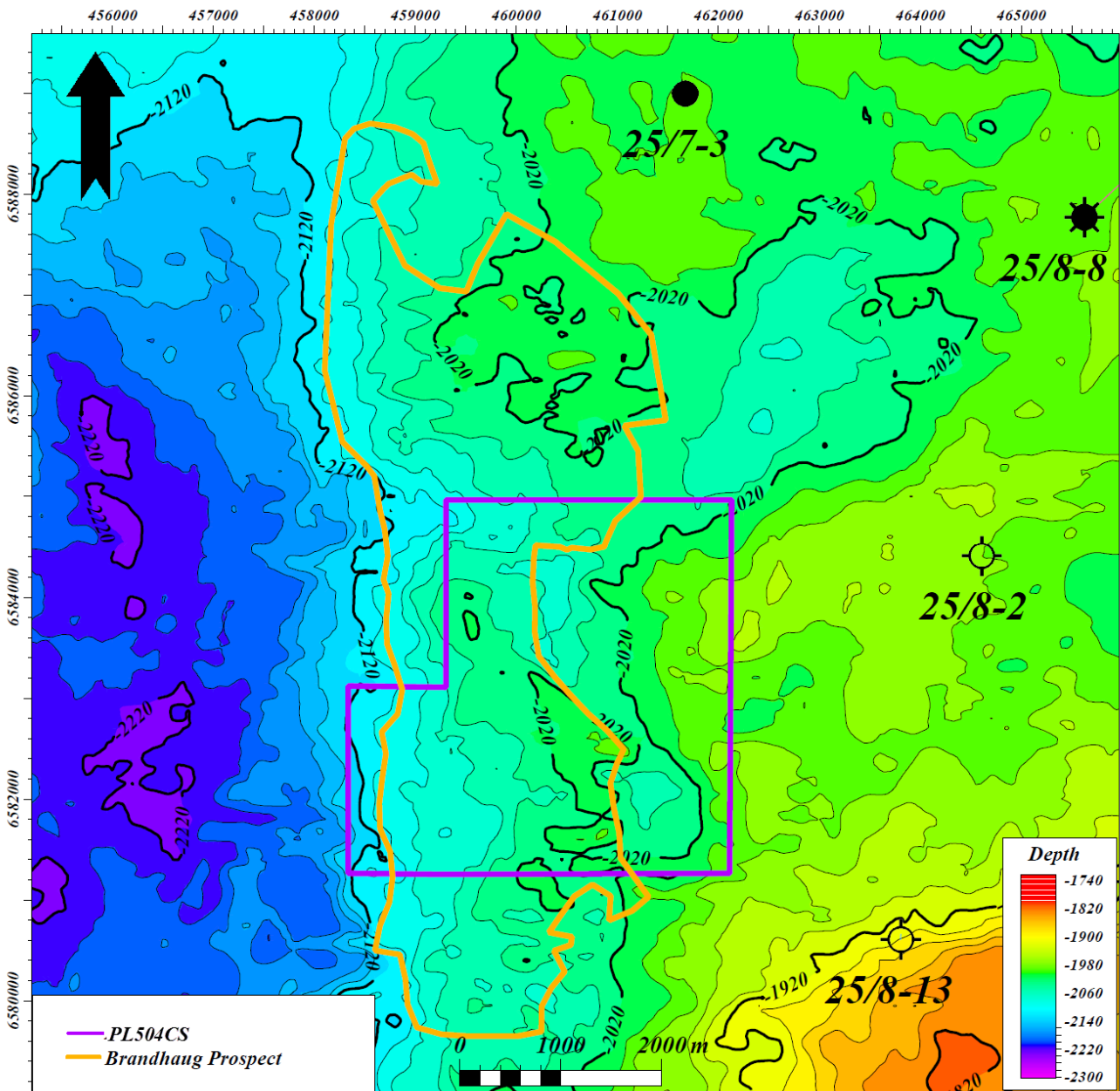


Fig. 4.1 Brandhaug map outline. Top Hermod depth structure map. C.i. 20 m.

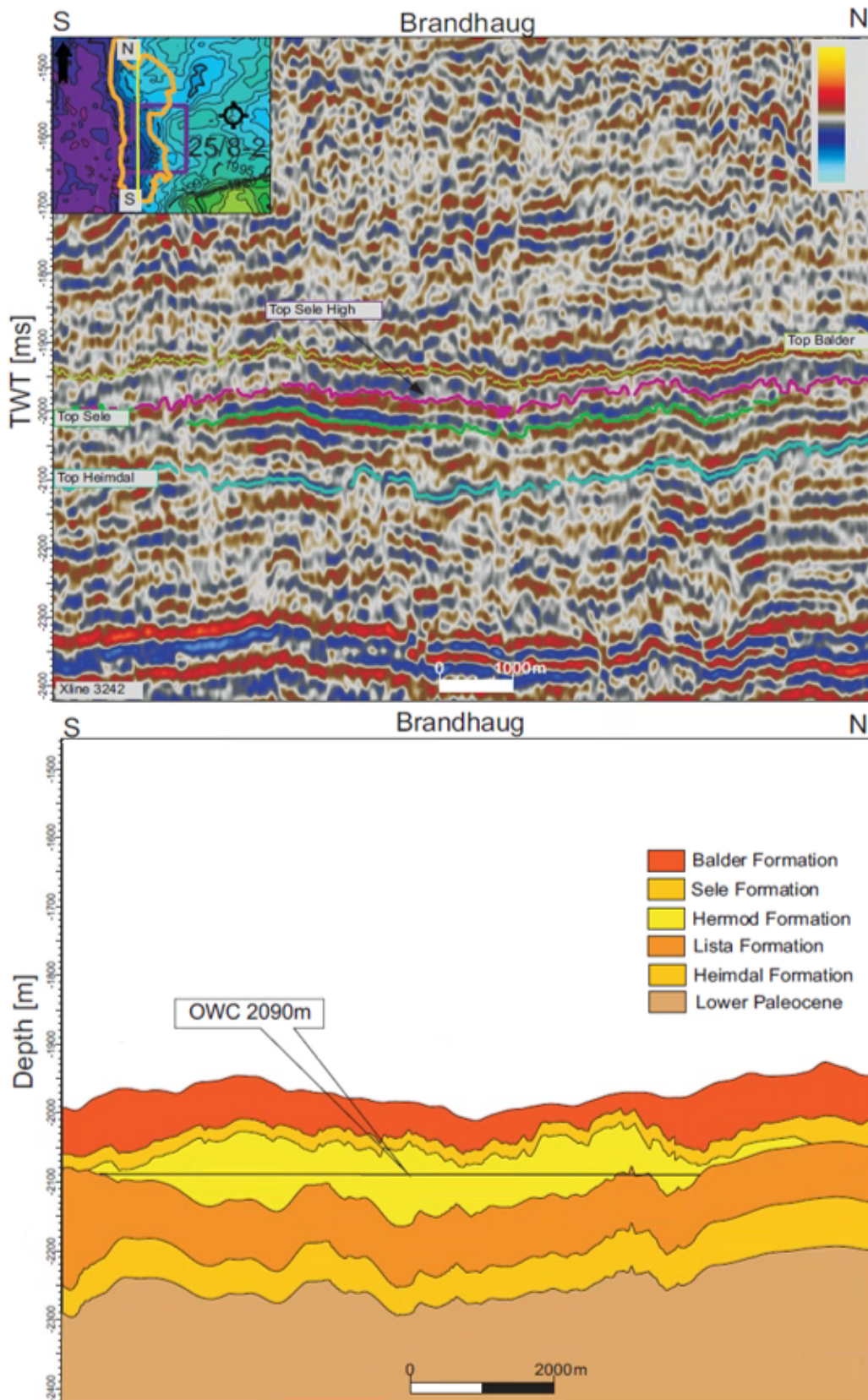


Fig. 4.2 North-South cross section across Brandhaug. Xline 3242 (PD06M01)

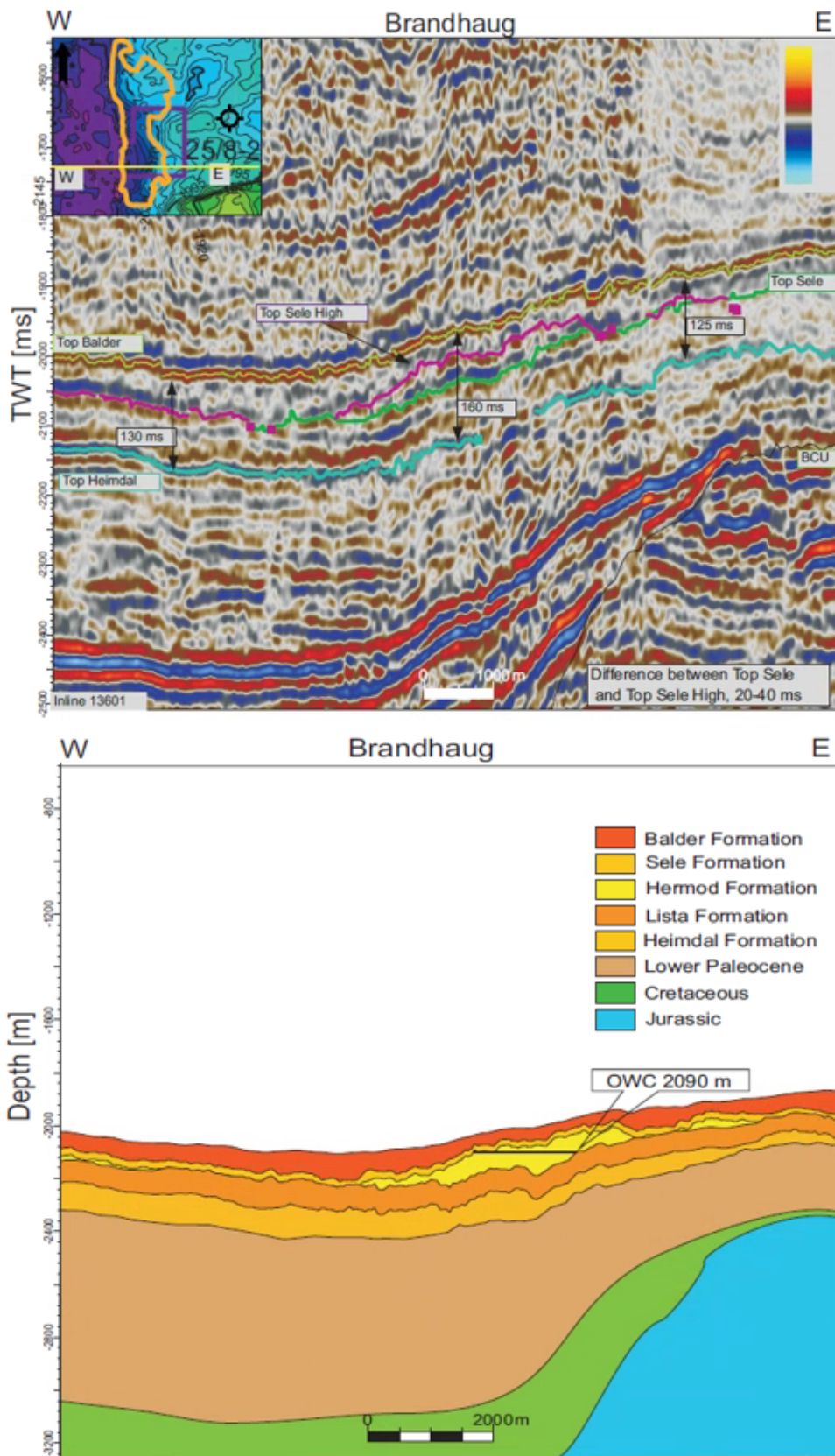


Fig. 4.3 West-East cross section across Brandhaug. Incline 13601 (PD06M01)



The Brandhaug prospect has been an amplitude driven prospect in Hermod Formation. It is located at the distal part of the depositional system of submarine fans of the Hermod Fm. No structural/stratigraphic trap is observed, it seems like the Hermod sand continues southeast to the Ringhorne/Balder complex. The postulated source rock for this prospect is the Upper Jurassic shales of the Draupne and Heather formations, which are mature in the Viking Graben to the west of this area. Migration into the Paleocene rocks is poorly understood, but proven to work in this area.

The main risk of the prospect is the trap. The Brandhaug Prospect is left with no indications of sand in a closure, and no indications of hydrocarbons. The Brandhaug Prospect had an overall probability for a discovery of 0.26 from earlier risking (APA 2008), this is now re-evaluated to 0.03 because of a much higher risk on the trap. The Hermod sands in the area give a classic AVO response, with a strong far trace response to oil. Brandhaug has no such indications of hydrocarbons as shown in Fig. 4.4.

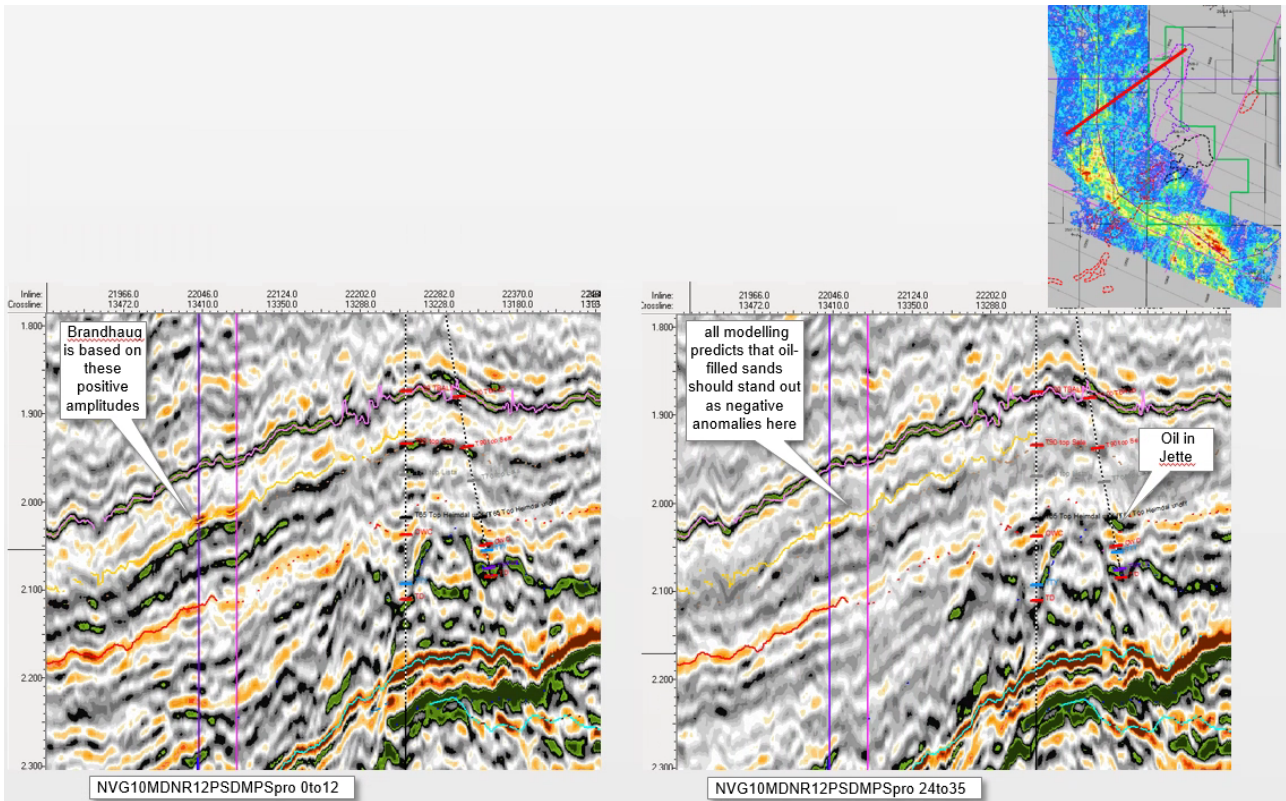


Fig. 4.4 Seismic line NVG10MDNR12PSDMPSPRO across Brandhaug. *The geophysical modelling asserts that we should see the change from oil-filled to water filled Hermod sands. There is no sign of this.*

The Brandhaug Prospect has not reached the quality level for a drilling candidate. The prospect has been thoroughly assessed with separate evaluations providing similar conclusion. The prospect was believed to share an OWC with the Jette Field, where the reservoir sand extends partly above the OWC in the field. Final evaluation did not confidently identify sand above the Jette OWC, and no indications of hydrocarbons.

Other prospectivity levels in the license has been evaluated and not found interesting.

No prospects are identified and therefore no economic evaluations have been done.

The final conclusion on the evaluation of the prospectivity in the license is therefore that it is not found any prospects which have reached the quality level for a drilling candidate, this is the reason for relinquishment of the PL504CS.