

PL 400 Relinquishment Report

November 2011

Contents

1.	Summary and Conclusion	3
2.	Introduction	3
3.	License award.....	3
4.	Completed work program and special studies	4
5.	Prospectivity evaluation	5
6.	3/8-1 well results	9
7.	Remaining prospectivity	12

1. Summary and Conclusion

The evaluation of PL 400 resulted in a prospect portfolio consisting of one prospect; Barchan, and three leads; Blizzard, Bouma and Breeze. The exploration well 3/8-1 tested Barchan and two of the leads. The well was dry and also downgraded the Blizzard lead due to increased risk for migration failure. The decision to relinquish the license has been made by the partnership on 28th November 2011.

2. Introduction

PL 400 comprises parts of block 3/5 and block 3/8 in Søgne Graben and on Ringkøbing-Fyn High. The license is located east of the Trym field and west of the Danish Siri field.

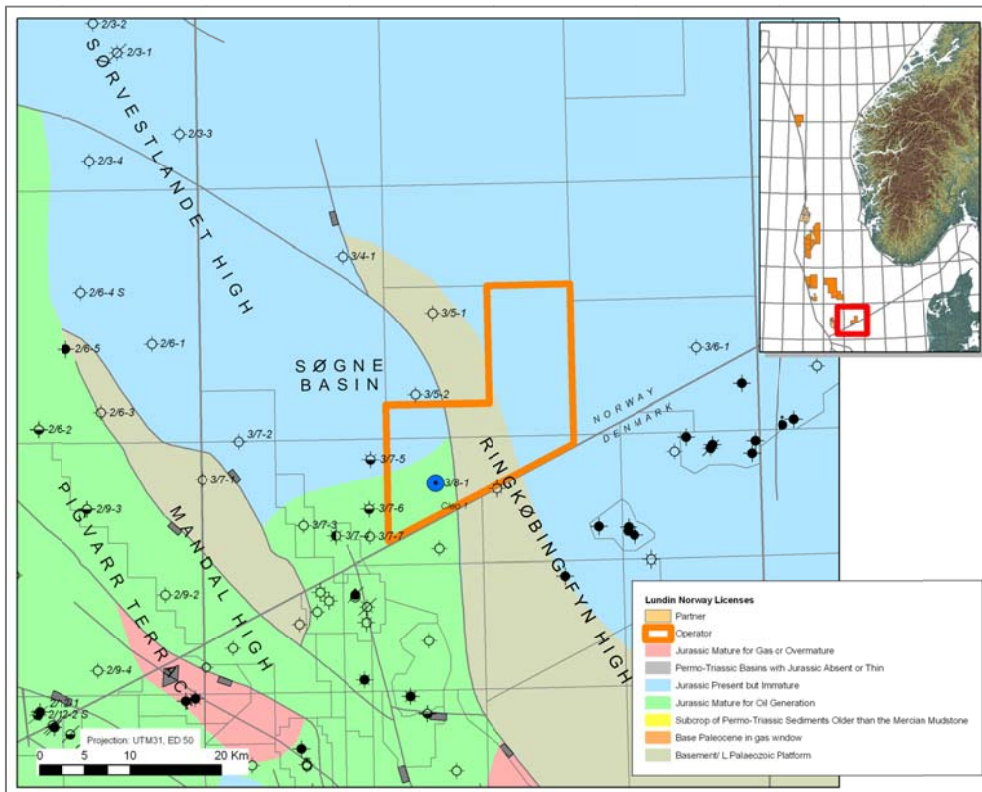


Figure 1: License location and main structural elements

3. License award

PL400 was awarded as part of APA 2006 on 16th February 2007, with a 6 years initial license period to Lundin Norway AS (Lundin, operator and 50%), Norwegian Energy Company AS (Noreco, 30%) and Petoro AS (Petoro, 20%).

Lundin and Noreco had applied jointly for the acreage in with a prospect portfolio consisting of one prospect and two leads (see figure 2). The defined prospect, Blizzard, was a four-way dip closure related to a salt collapse

structure with expected Upper Jurassic sandstone reservoir (Ula Fm equivalent). It was partly covered by 3D. The leads, Barchan and Breeze, of Permian Rotliegende Gp and Paleocene Ty Fm respectively, extended outside the application area and outside available seismic coverage.

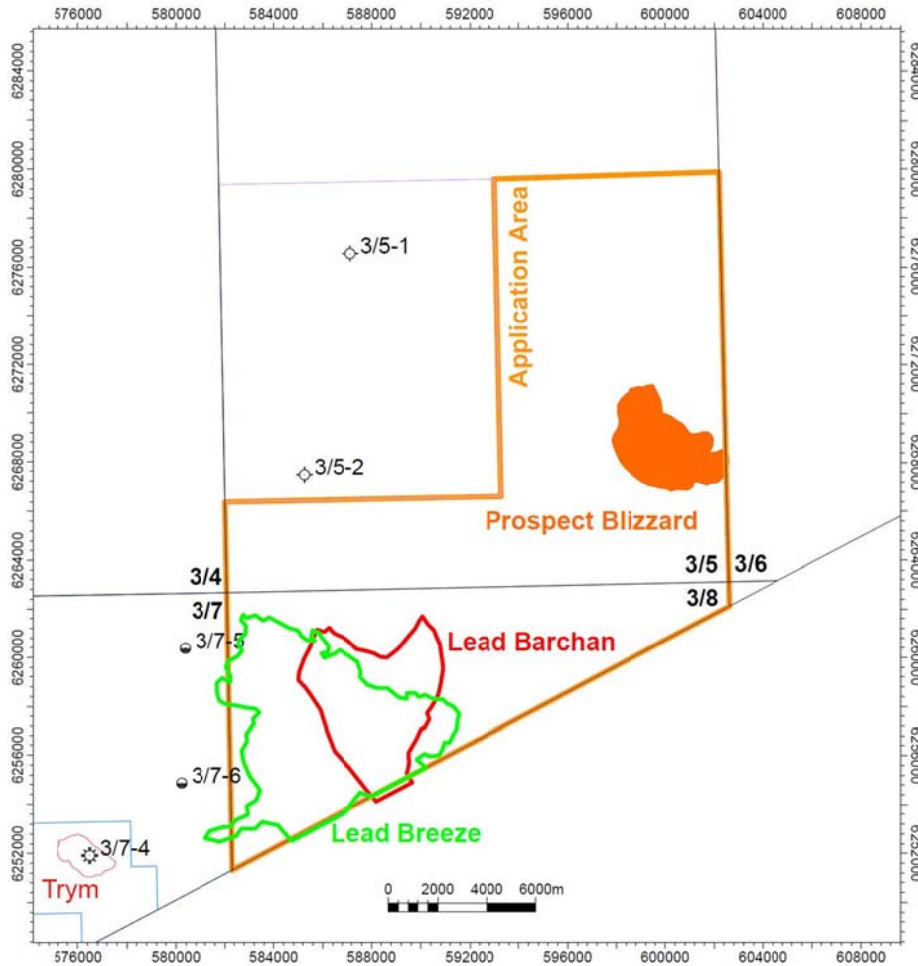


Figure 3: Prospect portfolio from APA 2006

4. Completed work program and special studies

The work commitment comprised of the purchase of existing 3D seismic within awarded acreage, acquisition of at least 80 km², and reprocess and merge 3D seismic. A drill-or-drop decision was to be made within 2 years of award.

The work commitment was fulfilled in 2007 by acquisition of 100 km² (LN0705) and purchase of the merged data set DG04M01. In addition, LN0705 was traded with parts of DNO0605, and the whole 3D seismic data base (also comprising SIRINOR96 and SH9302) was merged (post stack) and the final survey was named LN08M01.

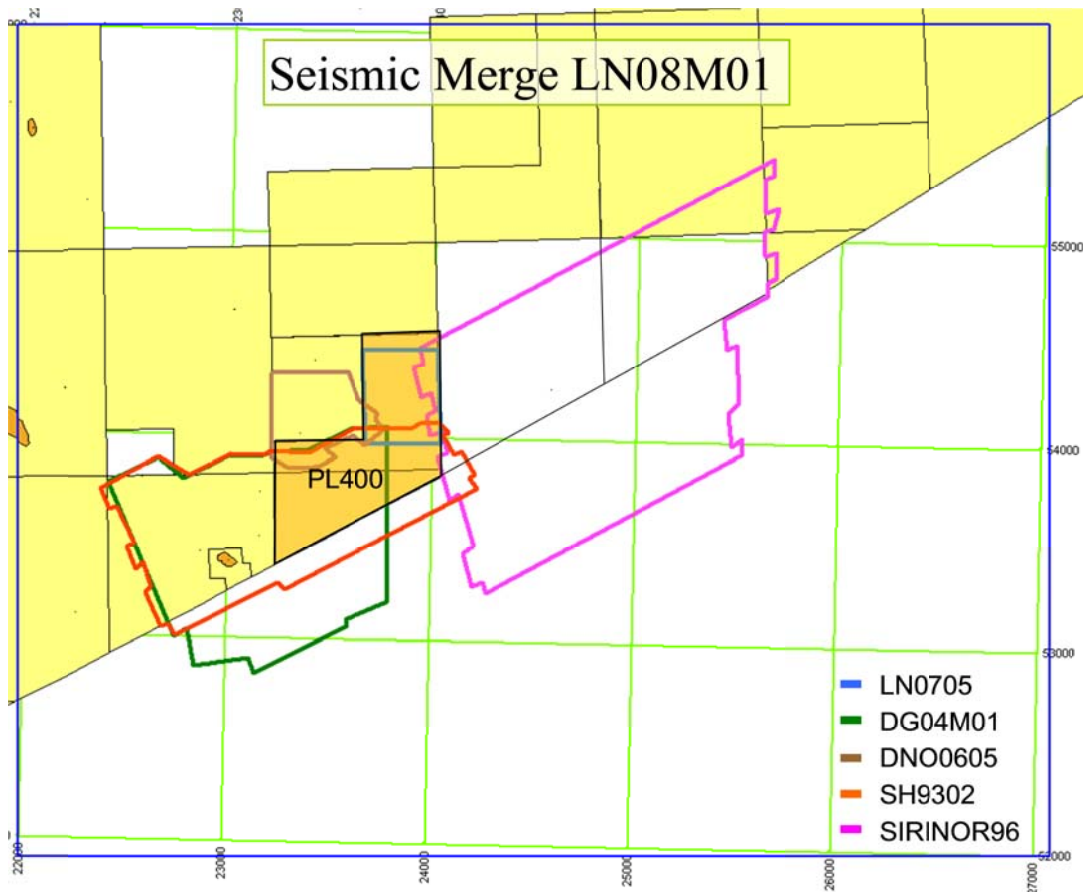


Figure 2: Seismic 3D coverage

In addition to the work commitment, special studies have been performed, including:

- H-mult processing (to remove multiples below and parallel to the strong BCU reflector)
- auto imaging processing (test to improve fault definition on seismic)
- rock physics, fluid substitution and AVO analyses
- basin modeling

5. Prospectivity evaluation

The reinterpretation of the prospectivity was carried out on the LN08M01;

Barchan prospect: This lead was upgraded to prospect with the combined effort of the new seismic and merge with the existing and the improved data quality. It was a 3-way dip fault seal dependent structure, on a down faulted block of the Coffee Soil fault. The prospect was defined on Rotliegend Gp reservoir level of Permian age (see figure 4). The highest risk for the prospect was assumed to be migration and reservoir quality: The former was due to the need for hydrocarbon migration across a major fault, where the source rock was juxtaposed against reservoir in a limited area, the latter was due to

the fact that only a limited number of wells had penetrated the Rotliegende Gp in the area. In addition, the closest well to have penetrated Rotliegende (Elna-1, 7 km to the west) did not have reservoir quality in this sequence. However, well 3/5-1, located 18 km to the north, had 300m of Rotliegende aolian sandstone with excellent reservoir quality. The prospect did not have a defined spill point, thus the fill would depend on fault seal capacity and the amount of hydrocarbons migrating into the structure.

Bouma lead: The lead was a stratigraphic feature on Upper Jurassic/ Lower Cretaceous age above the Barchan prospect. A wedge shaped feature had been identified on the seismic, interpreted as a submarine fan deposited off the Ringkøbing-Fyn High into the Søgne Basin. The lead was dependent on stratigraphic pinch-out up-flanks, and migration was also considered high risk.

Breeze lead: A thickening of the Ty Fm (or Borr Fm) off the Ringkøbing-Fyn High had been recognized at the time of application. The merged and reprocessed data set confirmed its extension southwards. It tied to Borr sandstone proved in the two Danish wells Elna-1 and Cleo-1. 20% gas saturation in Elna-1 had been production tested. The lead was depending on cross-fault seal and stratigraphic pinch-out in order to retain hydrocarbons downflanks from Elna-1. Hence, retention was regarded as very high risk for the lead.

For description of the Blizzard lead, see chapter 7 (Remaining Prospectivity).

The decision to drill was made late January 2009. Main target was the Barchan prospect. With the Bouma and Breeze leads located in the strata above Barchan. These would be tested by the same well.

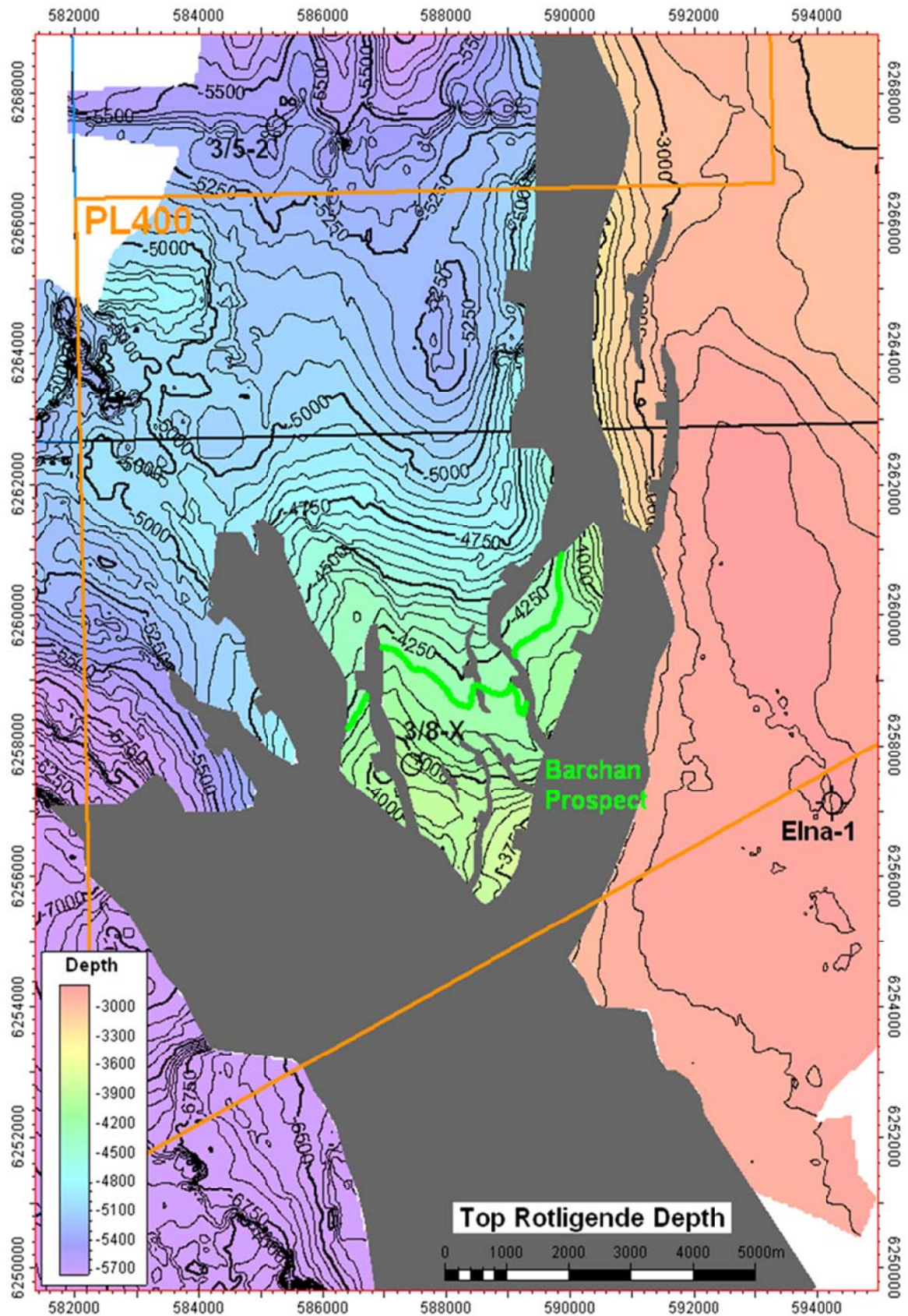


Figure 4: Top Rotliegende depth map (m)

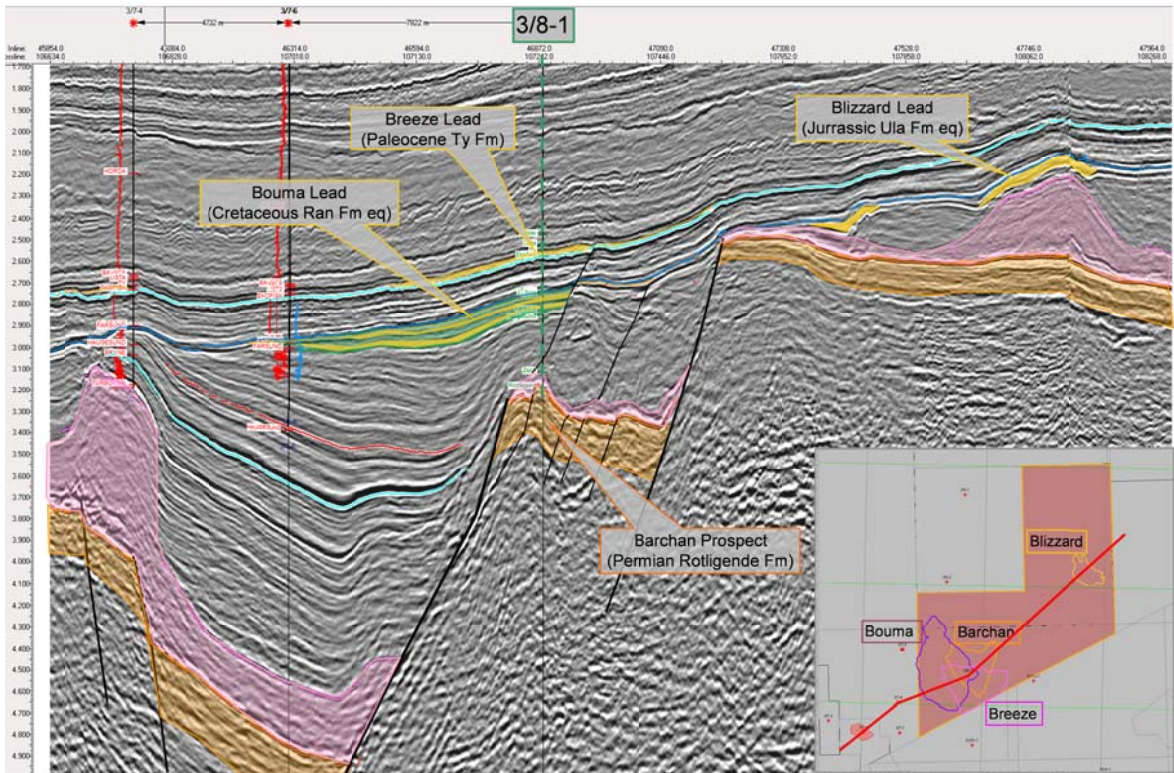


Figure 5: Seismic line showing the prospects and leads as interpreted prior to well 3/8-1.

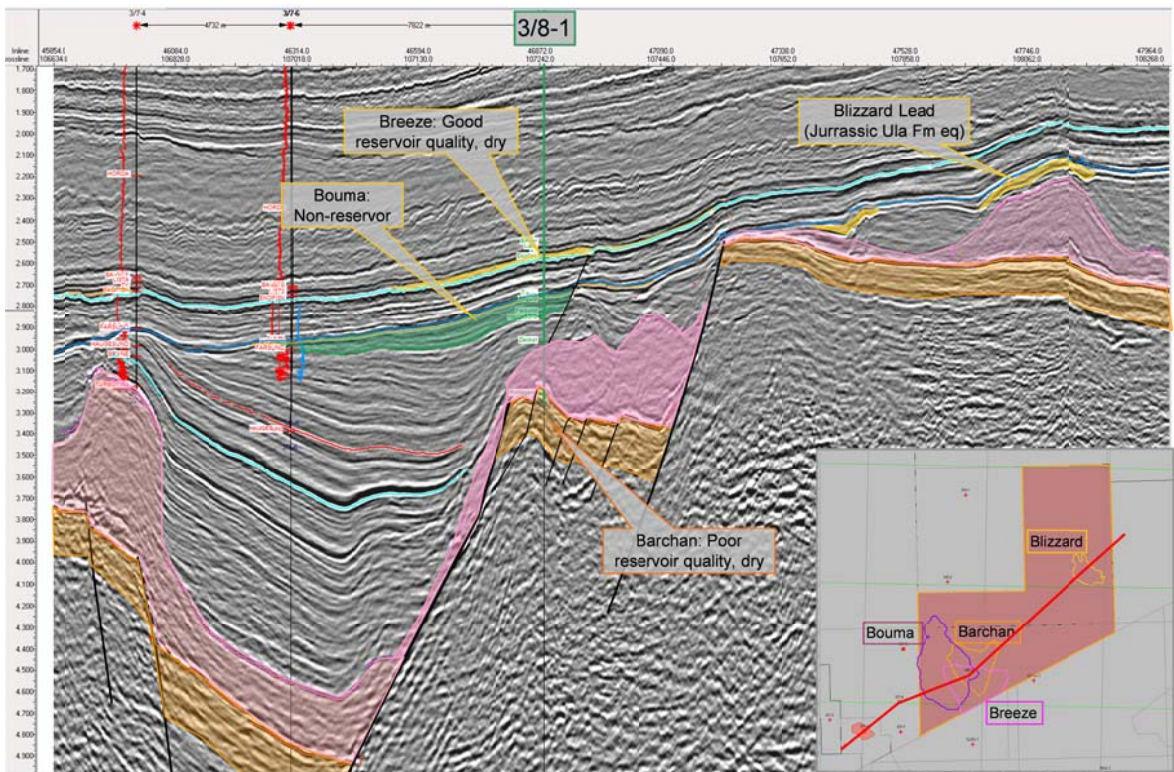


Figure 6: Seismic line showing the prospects and leads as interpreted after the completion of well 3/8-1. Note the thick Zechstein above Barchan and the lack of sand within the Bouma Lead.

6. 3/8-1 well results

The prospect drilled was the Permian Rotliegende Barchan at a location where the Lower Cretaceous/ Upper Jurassic Bouma lead and the Paleocene Ty Breeze lead also were penetrated.

The well was drilled as a vertical well at the following location:

X: 587440	Y:6257730	(Geodetic datum ED50 ; Zone 31N)
Lat: 56° 27' 16,9"	Long: 4° 25' 7,3"	
Line intersection: (3D survey LN08M01)	xline: 107246	inline 46880

The well was spudded on October 29th 2010 and operations were completed December 24th 2010 (57 days on drilling operations).

The well was dry. The Rotliegende Gp within the Barchan prospect did not have reservoir quality and no hydrocarbon shows were observed. The overlying halite of the Zechstein Gp was much thicker than prognosed and interpreted (see figures 5 and 6), and it is likely that halite is present across the western bounding fault and thereby drastically reducing the possibility for hydrocarbons to migrate into the prospect.

With regards to the Bouma lead, the interpreted wedge feature was shale prone. As for the Breeze lead, sand was present as prognosed, but it was water bearing.

The prognosed vs. observed lithology and formation tops is shown in figure 7.

Data acquired in the well is listed in figure 8.

CPI's for Ty Fm and Rotliegende Gp are shown in figures 9 and 10.

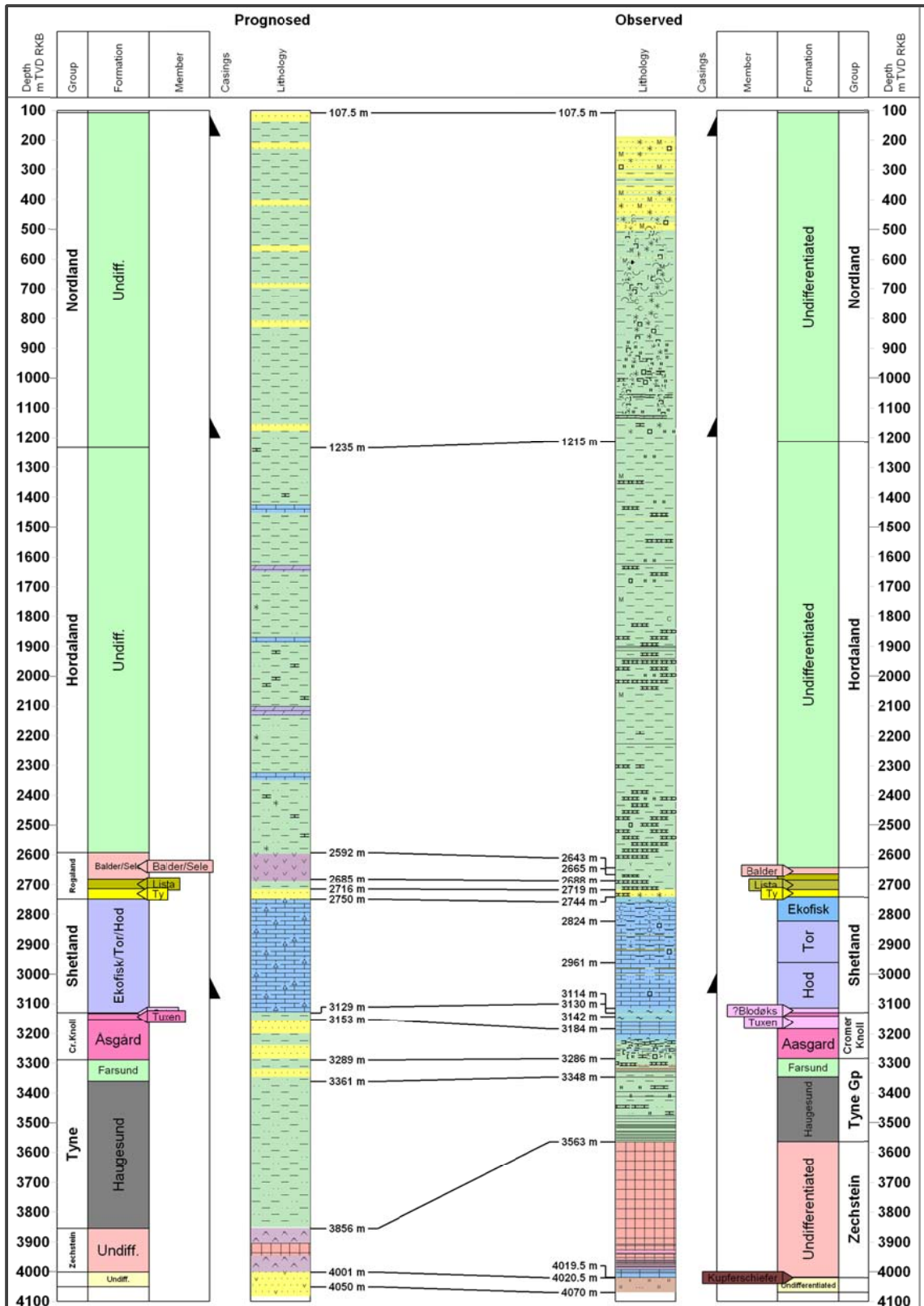


Figure 7: Well 3/8-1 prognosed vs actual (depth and geology)

Litho Strat.	Lithology	Casings	Depth m TVD MSL	Sampling	Logging
Nordland			0	<p>Bulk wet samples: 1 x 5 kg sample every 10 m from first return to top Balder.</p> <p>Washed and dried rig set: 1 x sample every 10 m from first return to top Balder, prepared and stored at the wellsite</p> <p>Geochemical samples 1 x canned sample every 20 m from first return to top Balder.</p> <p>Gas samples (Isotubes or gasbaas) 30 m interval from first return to top Balder fm</p>	<p>9 7/8" pilot hole: LWD: ARC (GR-RES-PWD)</p>
			500		
Hordaland			1000	<p>Bulk wet samples 1 x 5 kg sample every 3 m from top Balder to TD</p> <p>Washed and dried rig set 1 x sample every 3 m from top Balder to TD</p> <p>Geochemical samples 1 x canned sample every 3 m from top Balder to TD</p> <p>Gas samples 10 m interval from top Balder fm to TD</p>	<p>12 1/4" hole: LWD: GVR-ARC-ADN-Sonic (GR-RES-DEN-NEU-SONIC)</p>
			1500		
			2000		
			2500		
Rogaland	Balder		3000	<p>Bulk wet samples 1 x 5 kg sample every 3 m from top Balder to TD</p> <p>Washed and dried rig set 1 x sample every 3 m from top Balder to TD</p> <p>Geochemical samples 1 x canned sample every 3 m from top Balder to TD</p> <p>Gas samples 10 m interval from top Balder fm to TD</p>	<p>8 1/2" hole: LWD: GVR-ARC-ADN-Sonic (GR-RES-DEN-NEU-SONIC)</p>
Shetland	Ekofisk/ Tor/Hod				
Cr. Kneil	Asgård		3500	<p>Bulk wet samples 1 x 5 kg sample every 3 m from top Balder to TD</p> <p>Washed and dried rig set 1 x sample every 3 m from top Balder to TD</p> <p>Geochemical samples 1 x canned sample every 3 m from top Balder to TD</p> <p>Gas samples 10 m interval from top Balder fm to TD</p>	<p>8 1/2" hole: LWD: GVR-ARC-ADN-Sonic (GR-RES-DEN-NEU-SONIC)</p>
Tyne	Farsund Haugesund				
Zechstein			4000		
Rotliegendes					

Figure 8: Data acquisition in well 3/8-1

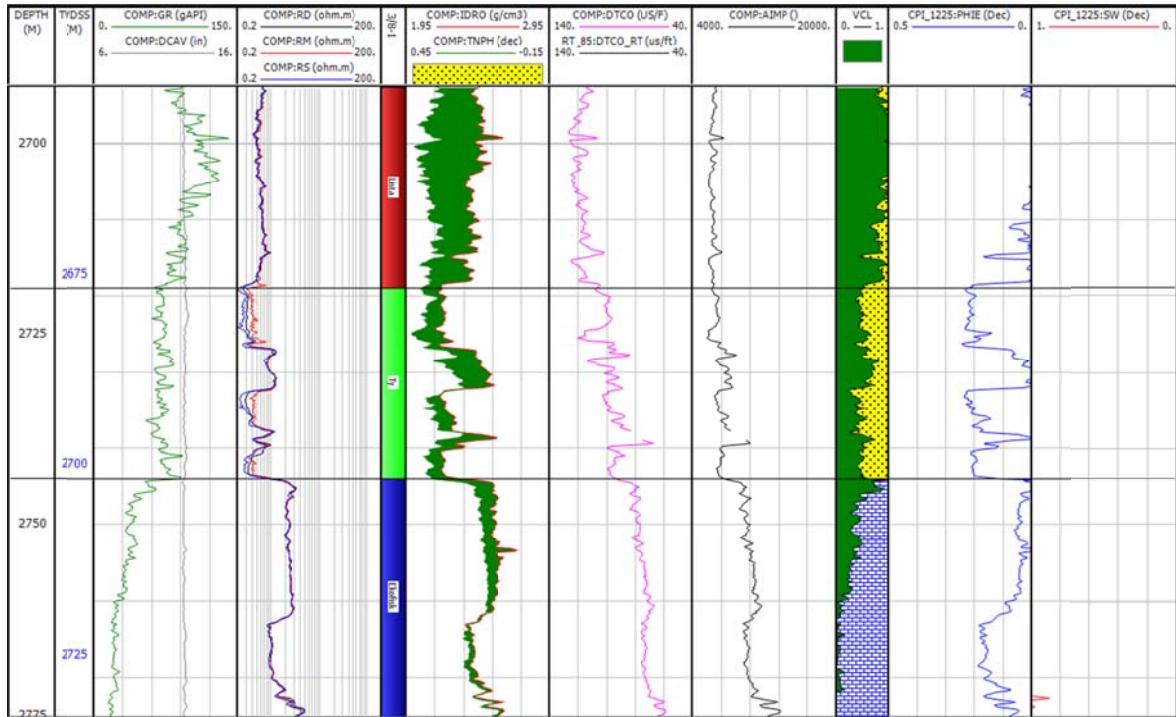


Figure 9: Well 3/8-1 CPI log for the Ty Fm

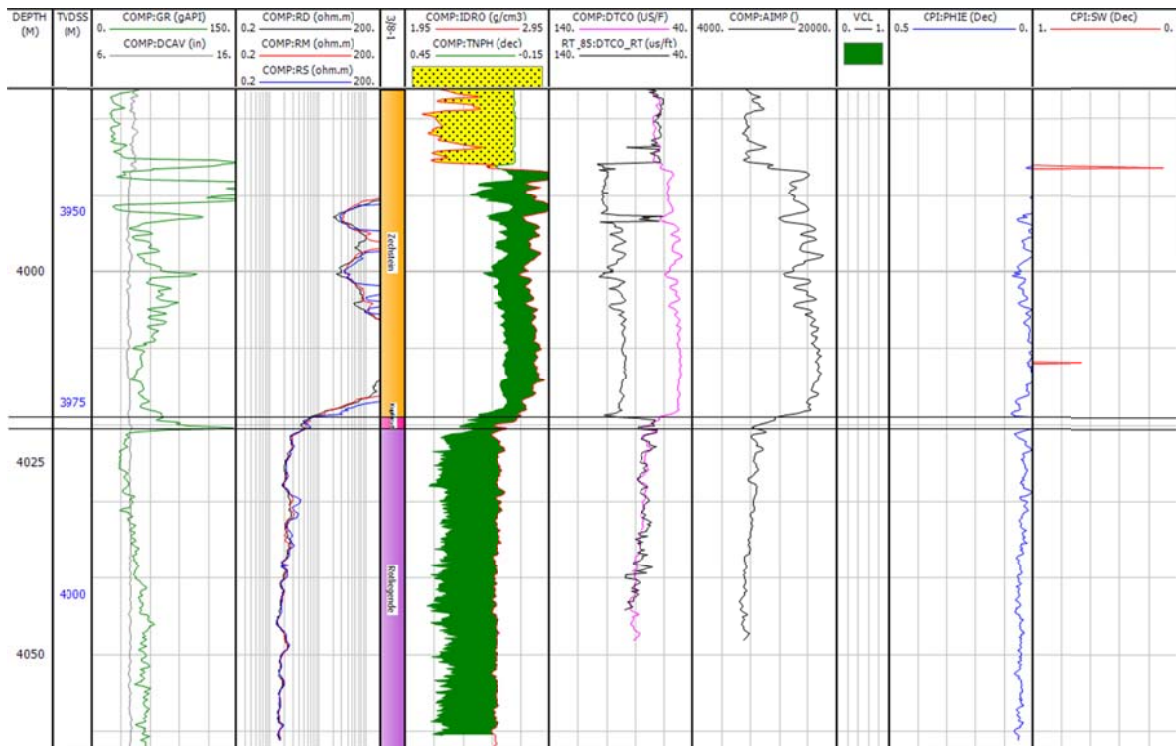


Figure 10: Well 3/8-1 CPI log for the Rotliegende Gp

7. Remaining prospectivity

The remaining lead in the license is the Blizzard lead. It consist of a thickening of the upper Jurassic interval above a salt-collapse feature situated on the Ringkøbing-Fyn High. The reservoir is interpreted to consist of intra-

pod, shallow-marine deposited Ula equivalent sandstone, similar to the reservoir rock found in Brynhild and the Ula and Gyda fields in quadrant 7. Blizzard comprises a 4-way dip closure with an additional stratigraphic pinch-out component, see figures 11, 12 and 13. The interpretation of the 3D survey LN0705 and the evaluation of the prospect, has reduced the STOOIP of the 4-way dip closure in the APA application from $20 \text{ to } 7 \times 10^6 \text{ Sm}^3$, due to reduction of both area of closure and column height.

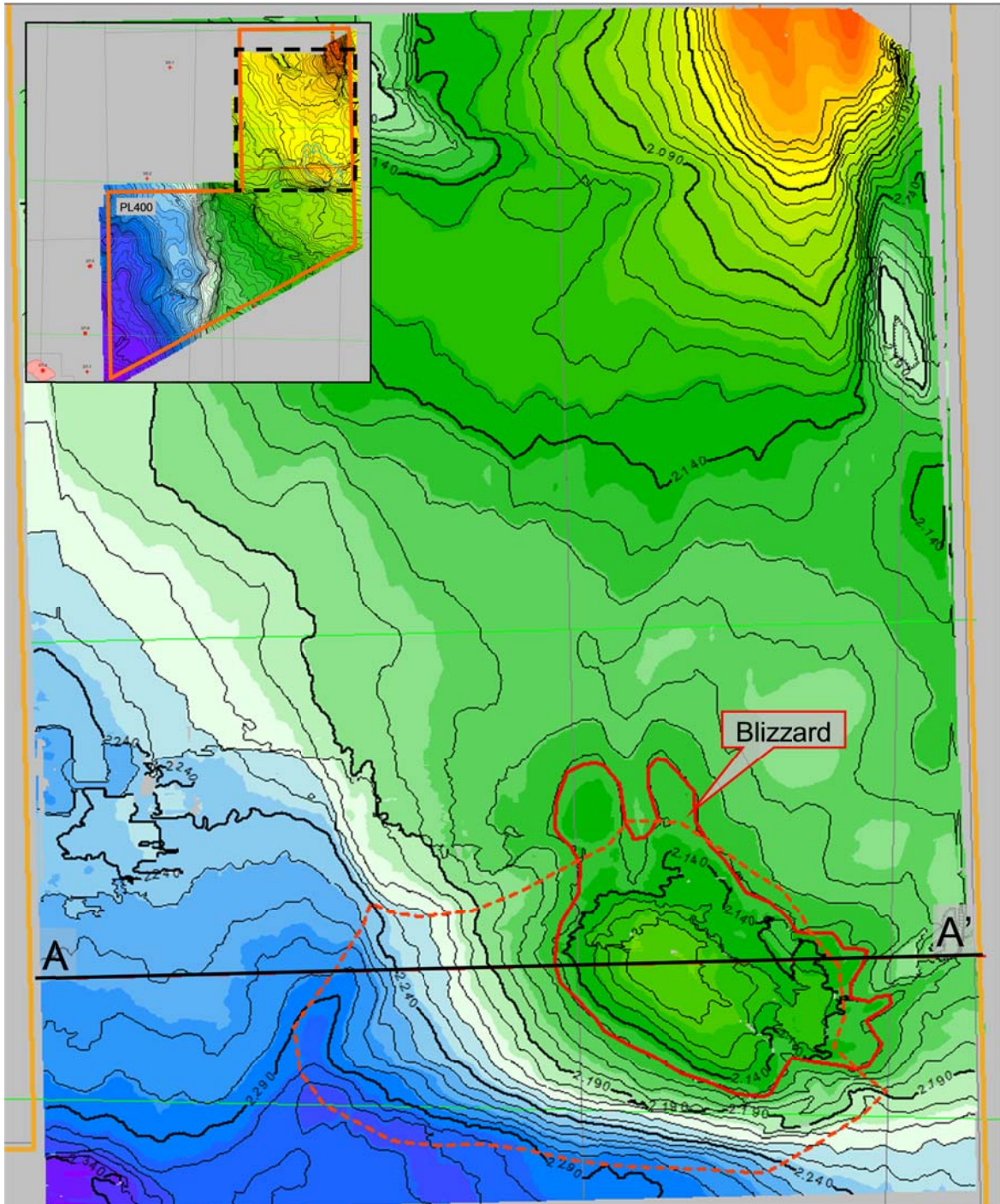


Figure 11: Blizzard lead, outlined on structural twt map on Base Cretaceous Unc (sec)

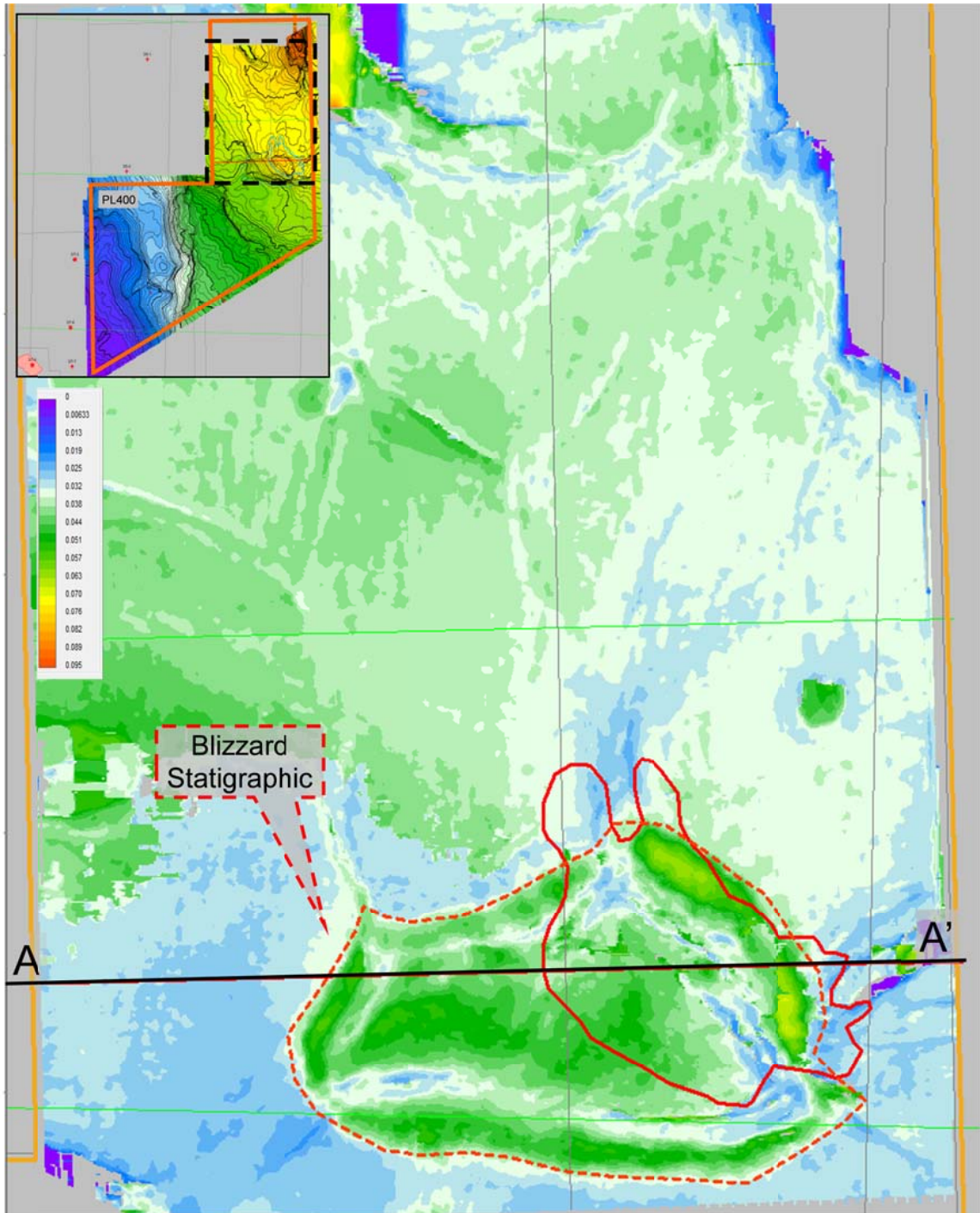


Figure 12: Blizzard lead, stratigraphic component, outlined on Upper Jurassic isopach map.

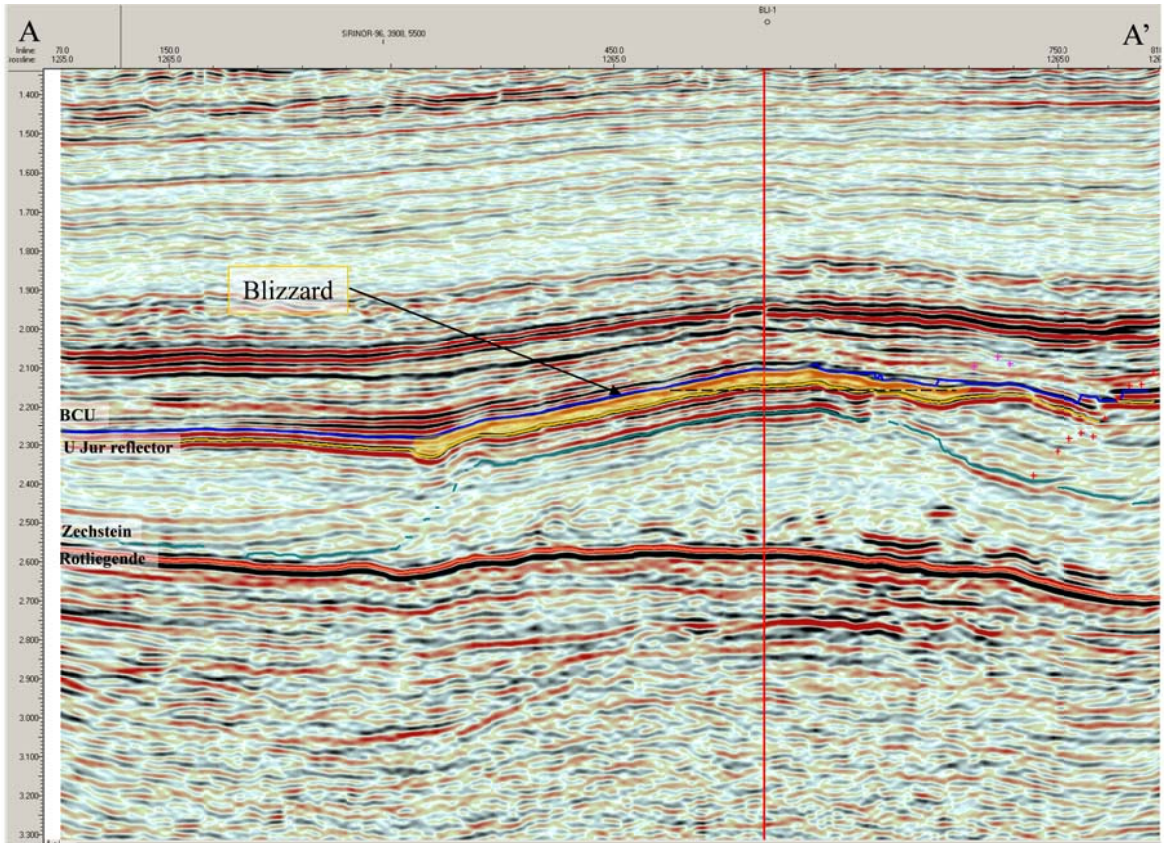


Figure 13: W-E line across the Blizzard lead

Post well 3/8-1 the prospect has been downgraded since migration into the trap is less likely. The reason is a lack of sand and a considerably thicker Zechstein halite on the migration route from the Søgne Graben.

Figure 14 summarizes the volumetrics and risking for the Blizzard lead.

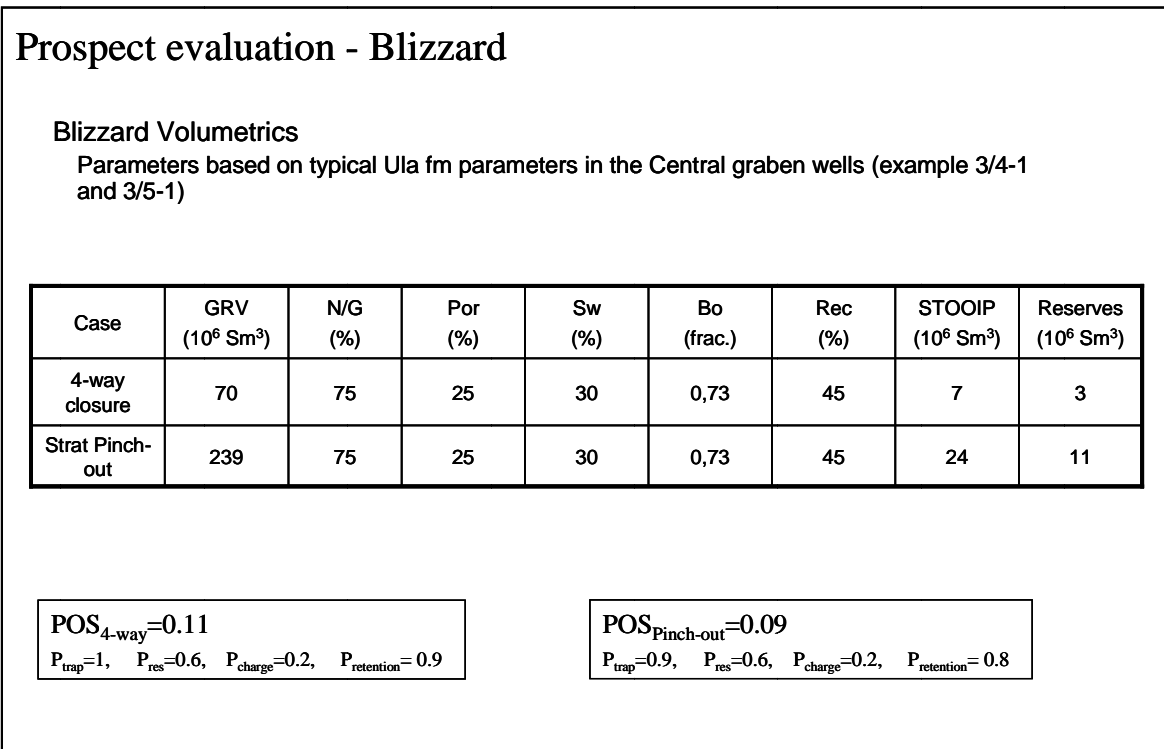


Figure 14: Blizzard volumetrics and chance of success