

PL490 relinquishment report

July 2015

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1. Summary and conclusion

The evaluation of PL490 resulted in a prospect portfolio consisting of the Cretaceous Juksa and Snurrevad prospects and several Cretaceous and Jurassic leads. The exploration well 7120/6-3 S tested Juksa and Snurrevad in 2012. The well proved sand with oil shows in Juksa. No sands were encountered in Snurrevad. With a high risk on reservoir presence/quality on the remaining leads, none of these has been upgraded to drillable prospects. The decision to relinquish the license was made by the partnership the 25th of February 2015.

2. Introduction

PL490 comprised 331.061 km² of blocks 7120/4, 5 and 6. The blocks are situated in the Hammerfest Basin in the Barents Sea, north-west of the Snøhvit gas field (Fig. 1).

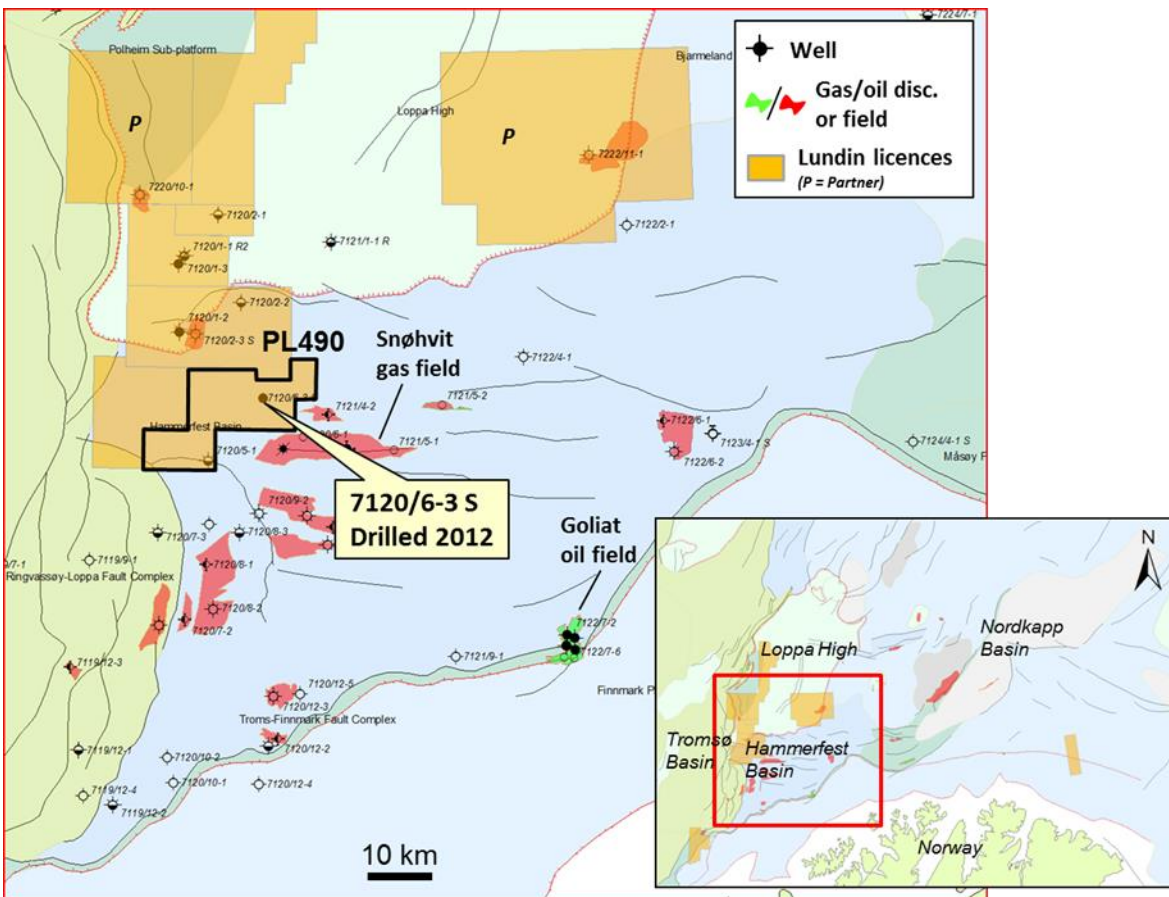


Fig. 1. Location of PL490 in the Hammerfest Basin.

3. License award and period extension

PL490 was awarded as part of APA 2007 on 29th February 2008, with a 6 years initial license period to Lundin Norway AS (40% and operator), Norwegian Energy Company ASA (20%), Det norske oljeselskap ASA (20%) and Aker Exploration AS (20%). The APA 2007 application contained several leads of Jurassic and Cretaceous ages (Fig. 2). The decision to drill one exploration well was made in May 2011.

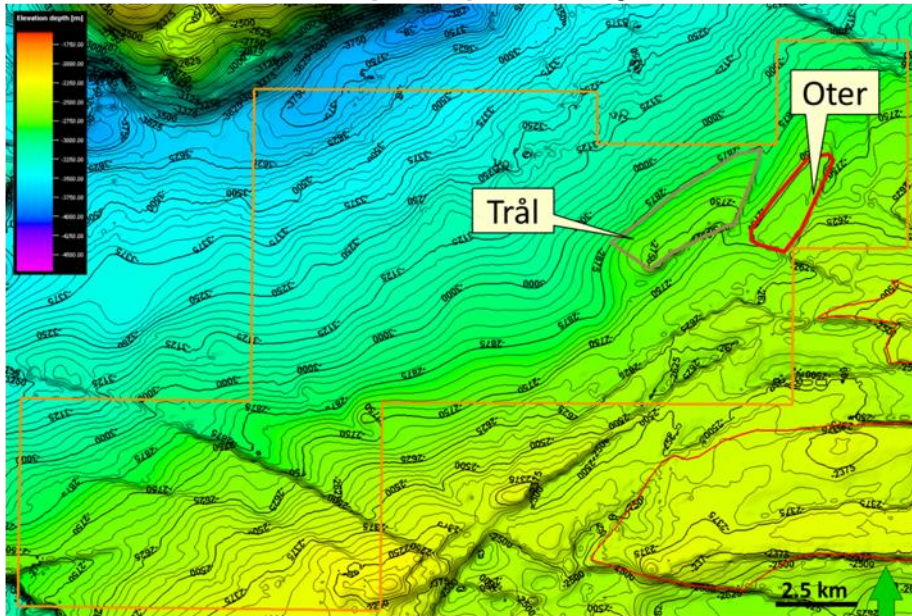
The initial period was first extended to May 29, 2015 and secondly to May 29, 2016.

The license was partly relinquished 3rd July 2014. The final license group was made up of Lundin Norway AS (50% and operator), Tullow Norge AS (30%) and Noreco Norway AS (20%).

Licensee valid from date	Licensee valid to date	Company	Interest (%)
13.02.2013	29.05.2015	Lundin Norway AS	50
		Tullow Oil Norge AS	30
		Noreco Norway AS	20
31.12.2012	13.02.2013	Lundin Norway AS	50
		Spring Energy Norway AS	30
		Noreco Norway AS	20
31.10.2012	31.12.2012	Lundin Norway AS	50
		Spring Energy Norway AS	30
		Norwegian Energy Company ASA	20
14.09.2011	31.10.2012	Lundin Norway AS	60
		Spring Energy Norway AS	20
		Norwegian Energy Company ASA	20
01.01.2011	14.09.2011	Det norske oljeselskap ASA	30
		Lundin Norway AS	30
		Talisman Energy Norge AS	20
		Spring Energy Norway AS	20
01.10.2010	01.01.2011	Lundin Norway AS	30
		Det norske oljeselskap ASA	30
		Norwegian Energy Company ASA	20
		Talisman Energy Norge AS	20
		Lundin Norway AS	30
30.04.2010	01.10.2010	Norwegian Energy Company ASA	20
		Talisman Energy Norge AS	20
		Det norske oljeselskap AS(old)	20
		Det norske oljeselskap ASA	10
		Lundin Norway AS	40
23.12.2009	30.04.2010	Norwegian Energy Company ASA	20
		Det norske oljeselskap AS(old)	20
		Talisman Energy Norge AS	10
		Det norske oljeselskap ASA	10
		Lundin Norway AS	40
22.12.2009	23.12.2009	Aker Exploration AS	20
		Norwegian Energy Company ASA	20
		Talisman Energy Norge AS	10
		Det norske oljeselskap ASA	10
		Lundin Norway AS	40
01.01.2009	22.12.2009	Aker Exploration AS	20
		Norwegian Energy Company ASA	20
		Talisman Energy Norge AS	10
		Det norske oljeselskap ASA (old)	10
		Lundin Norway AS	40
29.02.2008	01.01.2009	Det norske oljeselskap ASA (old)	20
		Aker Exploration AS	20
		Norwegian Energy Company ASA	20
		Lundin Norway AS	40

Table 1. Historical overview of PL490 licensees.

Middle Jurassic prospectivity



Cretaceous-Tertiary prospectivity

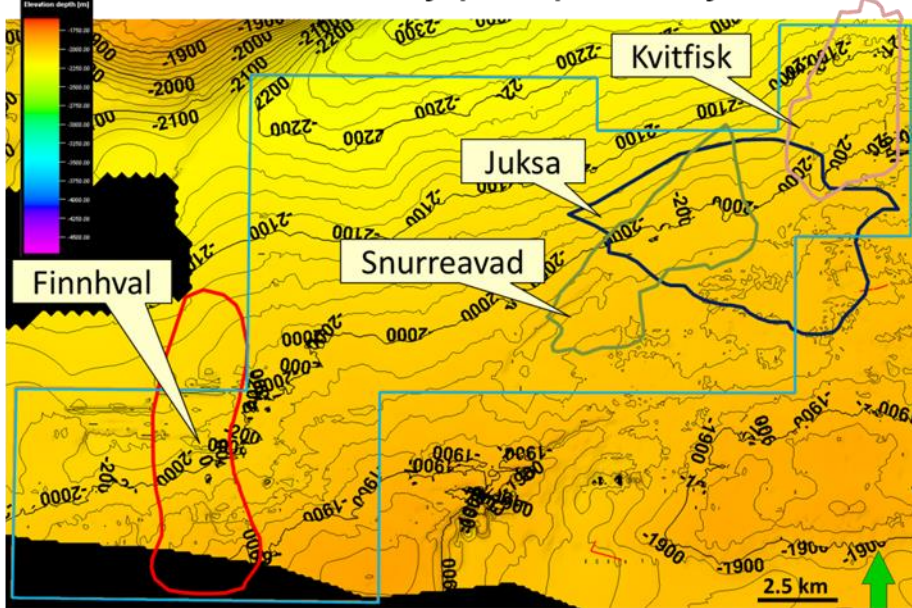


Fig. 2. Leads and prospects in PL490. Depth maps shown are Top Stø Fm. (upper map) and Base Kolmule Fm. (lower map).

4. Completed work and special studies

The work commitment was to acquire 3D seismic covering the license area. A drill-or-drop decision was to be made within 2 years and 90 days of award.

The seismic work commitment was fulfilled during 2008 by acquiring approximately 340 km² 3D (seismic survey LN0802, Fig. 3.).

In addition to the work commitment special studies have been performed, including AVO analysis and seismic inversion, seismic frequency blending, fluid substitution/seismic modelling, basin modelling and geochemical analysis of samples from relevant offset wells.

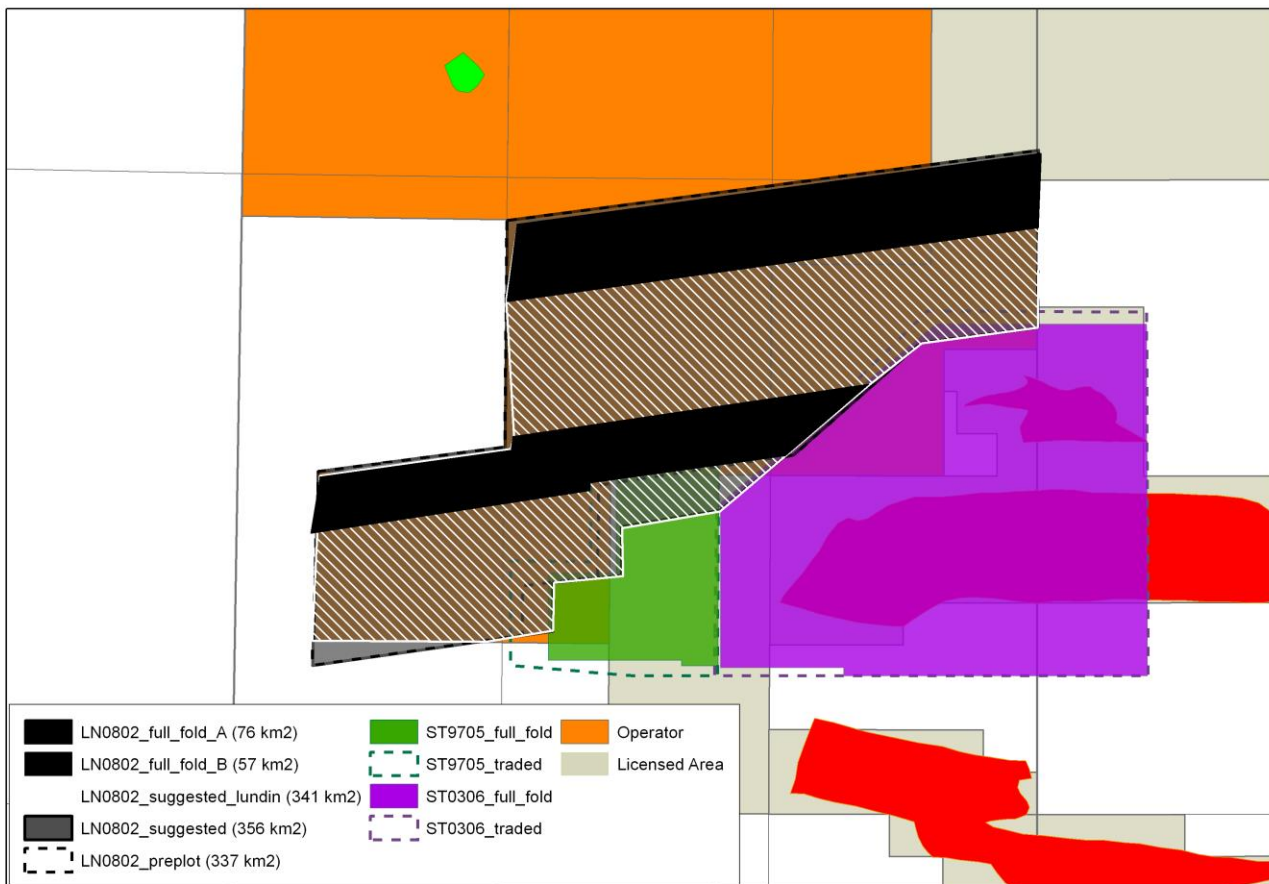


Fig. 3. Coverage of LN0802 3D seismic indicated in black.

5. Pre-drill prospectivity evaluation

The seismic interpretation (both regionally and locally), geochemical analysis, basin modeling as well as evaluation of prospectivity was carried out mainly during 2009-2010. The main targets were submarine clastic systems in the Lower Cretaceous Kolmule and Knurr Fms. visible as amplitude anomalies on seismic data. The prospects Juksa and Snurrevad were defined as stratigraphic traps and structural-stratigraphic combination traps. A Jurassic lead was defined in the Stø Fm. (Trål, structural 4-way trap). The Upper Jurassic organic rich Hekkingen Fm. was the primary source rock, with oil mature kitchens in the northern of the Hammerfest Basin delivering hydrocarbon charge to up-dip traps in the Jurassic and Lower Cretaceous formations. A lead called Kvitfisk was identified in the Paleocene section.

The Juksa and Snurrevad prospects appeared most promising; with P50 pre-drill volume estimates of around 65 MSm³ and 100 MSm³ of oil initially in place, respectively.

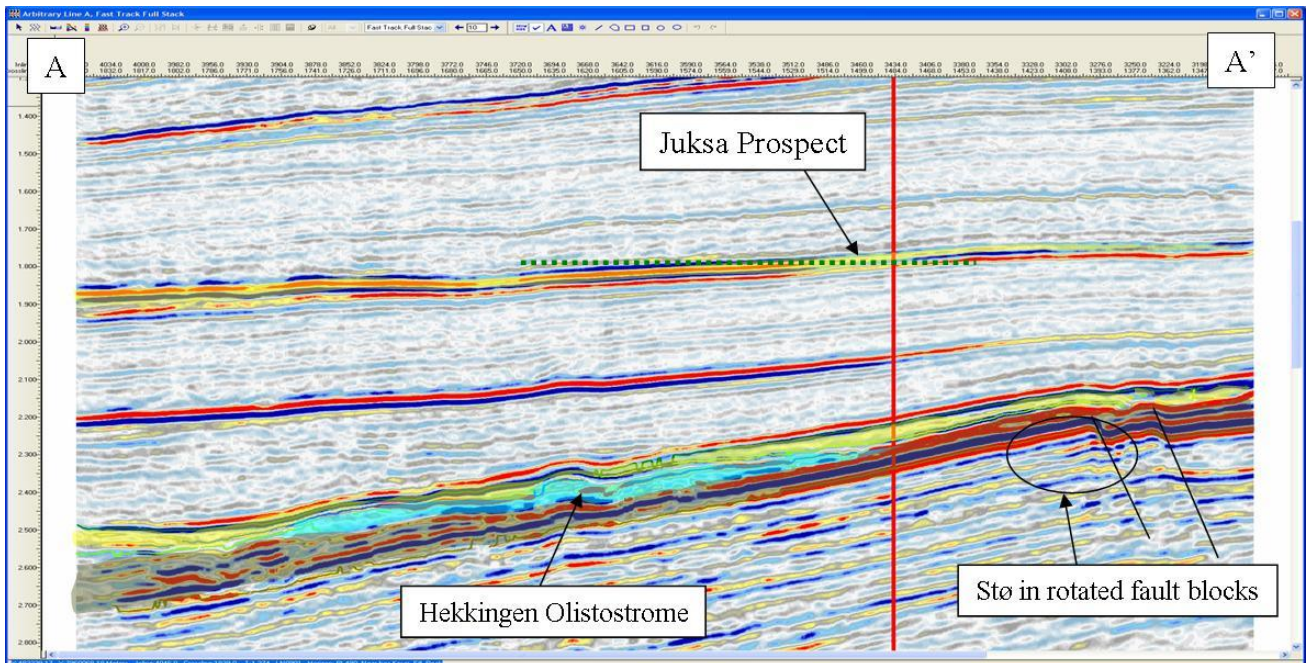
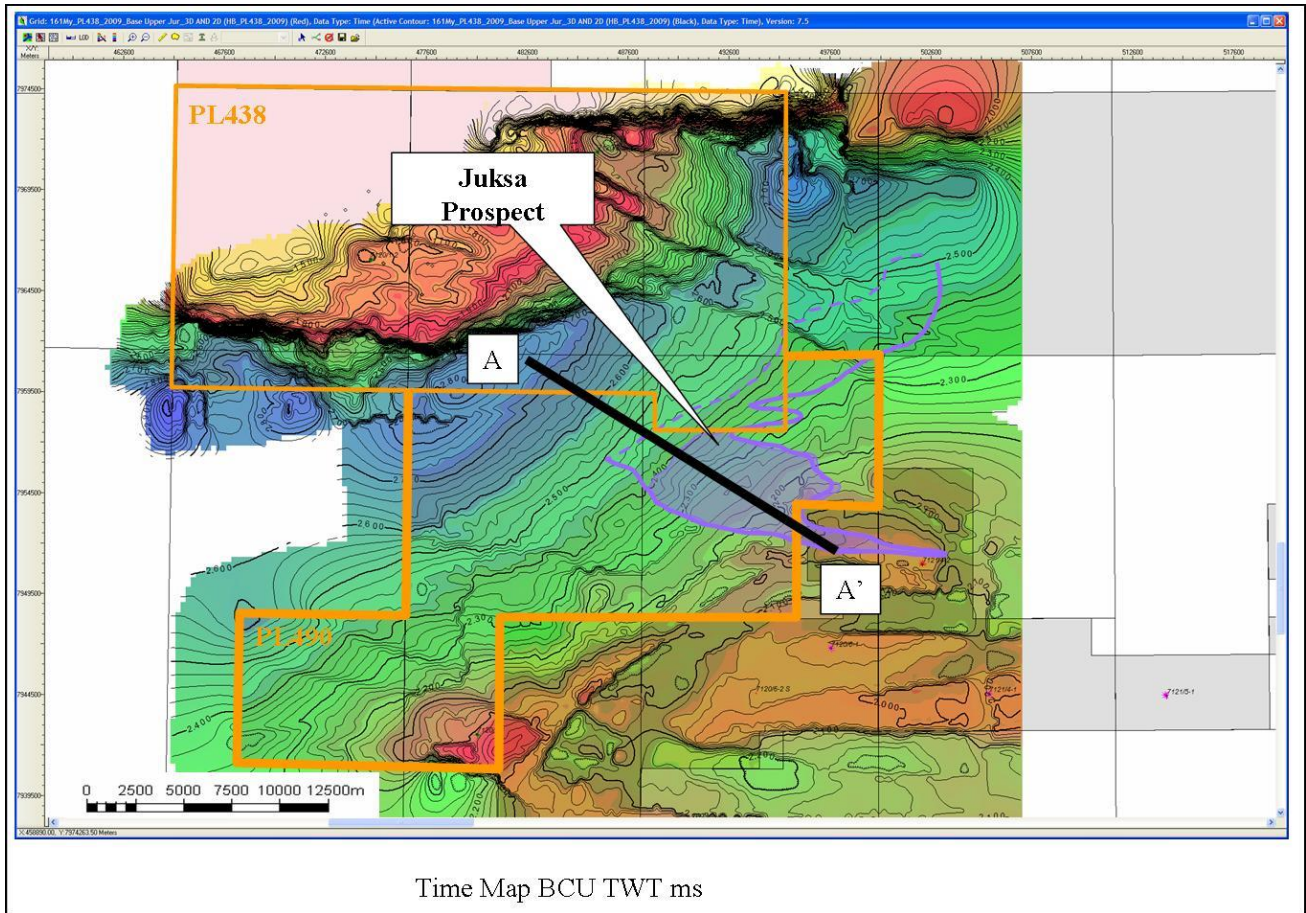


Fig. 4. Location of the Juksa prospect on a BCU time map. Also shows is location of seismic section A-A' crossing the Juksa prospect.

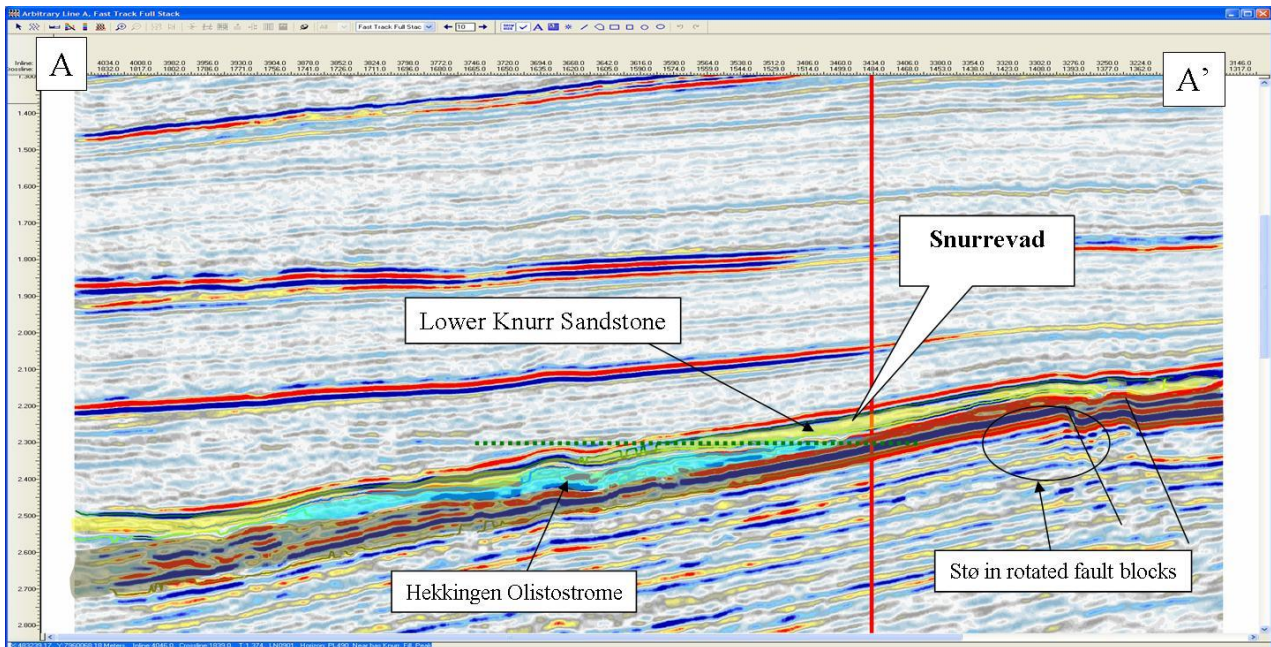
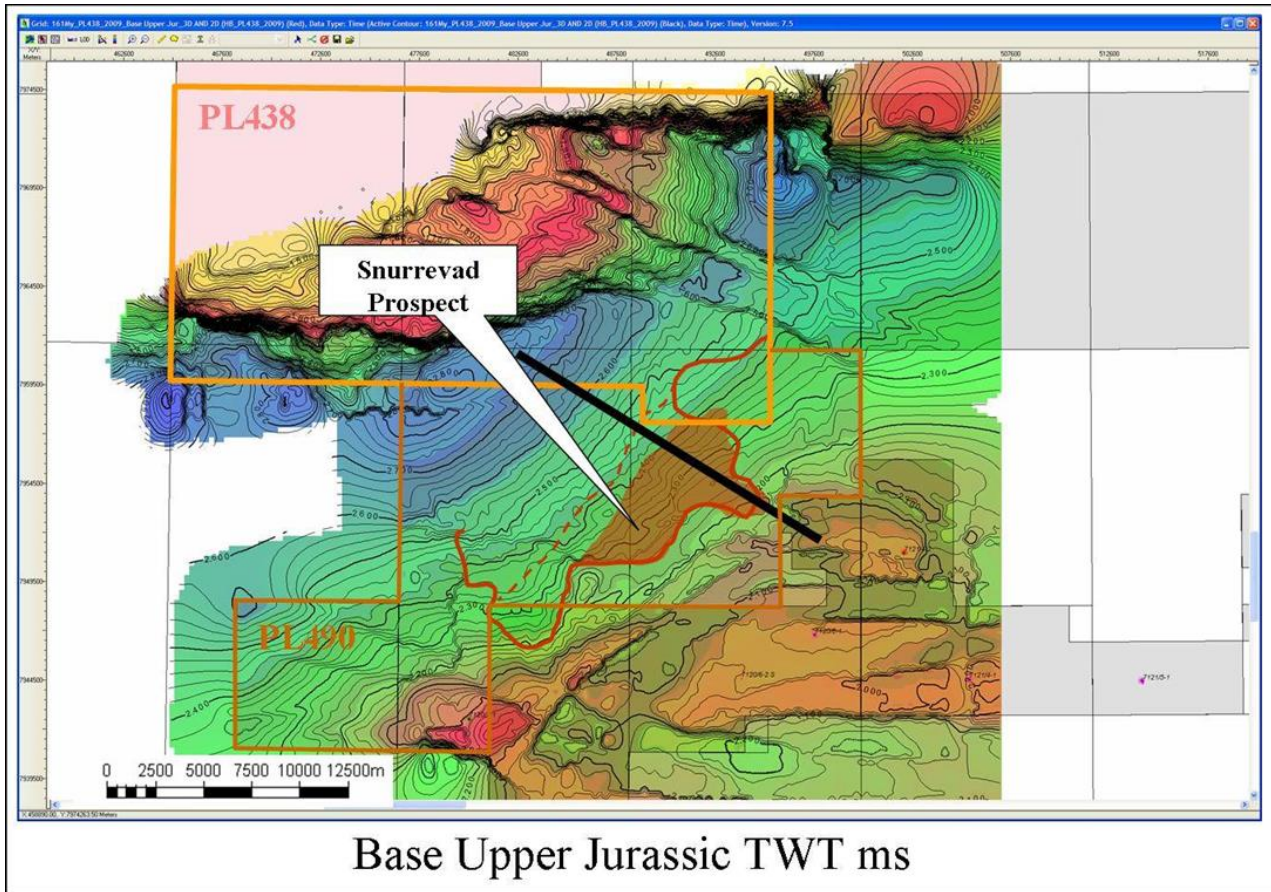


Fig. 5. Location of the Snurrevad prospect on a Base Upper Jurassic time map. Also shown is the location of seismic section A-A' crossing the Snurrevad prospect.

6. 7120/6-3 S results

The well was drilled at the following location:

X: 490226.96 m East	Y: 7953925.23 m North	UTM Zone 34N, CM 21° East
Lat: 71° 41' 02.43" N	Long: 20° 43' 16.97" E	ED-50
Line intersection: (LN11 IM07)	xline: 1356	Inline: 3490

The well was spudded 10.10.2012 and reached well TD of 3030 mMD RKB 17.11.2012. The well was permanently abandoned. The P&A operations were completed 30.11.2012 and the rig was off license 04.12.2012.

The well penetrated 25 m of sand with oil shows in the Lower Kolmule Fm. (Juksa). The Knurr Fm. consisted of mudstones with no hydrocarbon shows. The Lower Kolmule sandstone produced water with traces of hydrocarbons during RCI sampling. Organic rich mudstones of the Kolje and Hekkingen Fm. with potential to generate and expel oil and gas were penetrated. The well drilled 86 m of sandstone in the Stø Fm., with weak hydrocarbon shows in places.

7. Post-drill prospectivity evaluation

The sandstone proved in the Lower Kolmule Fm. was regarded as a positive indication of a working Cretaceous play. However, the lack of moveable oil in the formation may be caused by insufficient hydrocarbon charge or up-dip leakage. No sands were encountered in the Knurr Fm., suggesting that the location may have been too distal for sand deposition.

The second Kolmule lead identified in PL490 was eventually matured into the Finnshval prospect. The Finnshval prospect is located in the western part of PL490. The license group was approved to relinquish the eastern part of PL490 3rd July 2014, consequently keeping the segment including the Finnshval prospect.

The Finnshval prospect was visible as an amplitude anomaly, but not as distinct as Juksa. Several attempts were made in order to map out a drillable structure using various geophysical approaches, but the cause of the amplitude anomaly remained uncertain (the amplitude could represent sandstone facies or be caused by refracted seismic energy in thin carbonate layers). In addition no sand was present in the corresponding interval in offset wells, and a fault complex defining the southern border of the Finnshval prospect represented risk for leakage. Therefore it was decided to relinquish the remaining part of PL490. This was communicated to the Ministry of Petroleum and Energy in letter dated 20 March 2015.