License relinquishment report – Production License 631

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SOME EDITS NEEDED!

1. Key license history

PL631 was awarded as part of APA 2011 on February 3rd, 2012 with a 6 years initial license period (3+2+1) to Lundin Norway AS (60% and operator), Bayerngas Norge AS (30%) and Fortis Petroleum Norway AS (10%) (Table 1). The APA 2011 application contained two upper Jurassic prospects and one upper Jurassic lead; the Vollgrav, Vollgrav South and Vollgrav Central respectively. This was later adjusted to one prospect (Vollgrav South) and two leads (Figure 1).

Table 1 License history.

Lisence history			
Lisence valid from date	**Lisence valid to date**	**Company**	**Interest (%)**
03.02.2012	03.02.2018	Lundin Norway AS (O)	60
		Bayerngas Norge AS	30
		Fortis Petroleum Norway AS	10

Decision on concretization (BOK)	
Original deadline	New deadline
03.02.2015	03.02.2016

Meetings held	
MC no 1	06.02.2012
MC no 2	22.11.2012
MC no 3	25.06.2013
MC* no 4	04.12.2013
MC no 5	28.11.2014
MC no 6	03.03.2015
EC (wellplanning) no 1	20.01.2014
EC (wellplanning) no 2	23.04.2014
Core viewing workshop	4-8.3.2012

*Combined MC/EC

The work commitment was to reprocess 3D seismic and drill one well within 3 years from award. Decide on concretization or drop within 3 years. Decide on continuation or drop within 5 years and decide on PDO submission or drop within 6 years (Table 2). An application for a new deadline for decision on concretization (BOK) was submitted 9.1.2014 and the deadline was extended by one year. The work program has been completed. There are still leads in PL631, the Vollgrav and Vollgrav Central, but due to the very disappointing results of the 33/12-10S well the risk of hitting a non-reservoir, a poor reservoir or a reservoir without seal integrity has significantly increased. The licensees decide therefor to relinquish.

Table 2 Work program and duration

Period	Phase	Duration (year)	Work program	Decision at milestone
Initial period:	1	3	Reprocess 3D seismic, drill exploration well	Concretize (BoK) or Drop
	2	2	Conceptual studies	Continuation (BoV) or Drop
	3	1	Prepare development plan	Submit PDO or Drop
	Sum	7	Extension period (years):	20

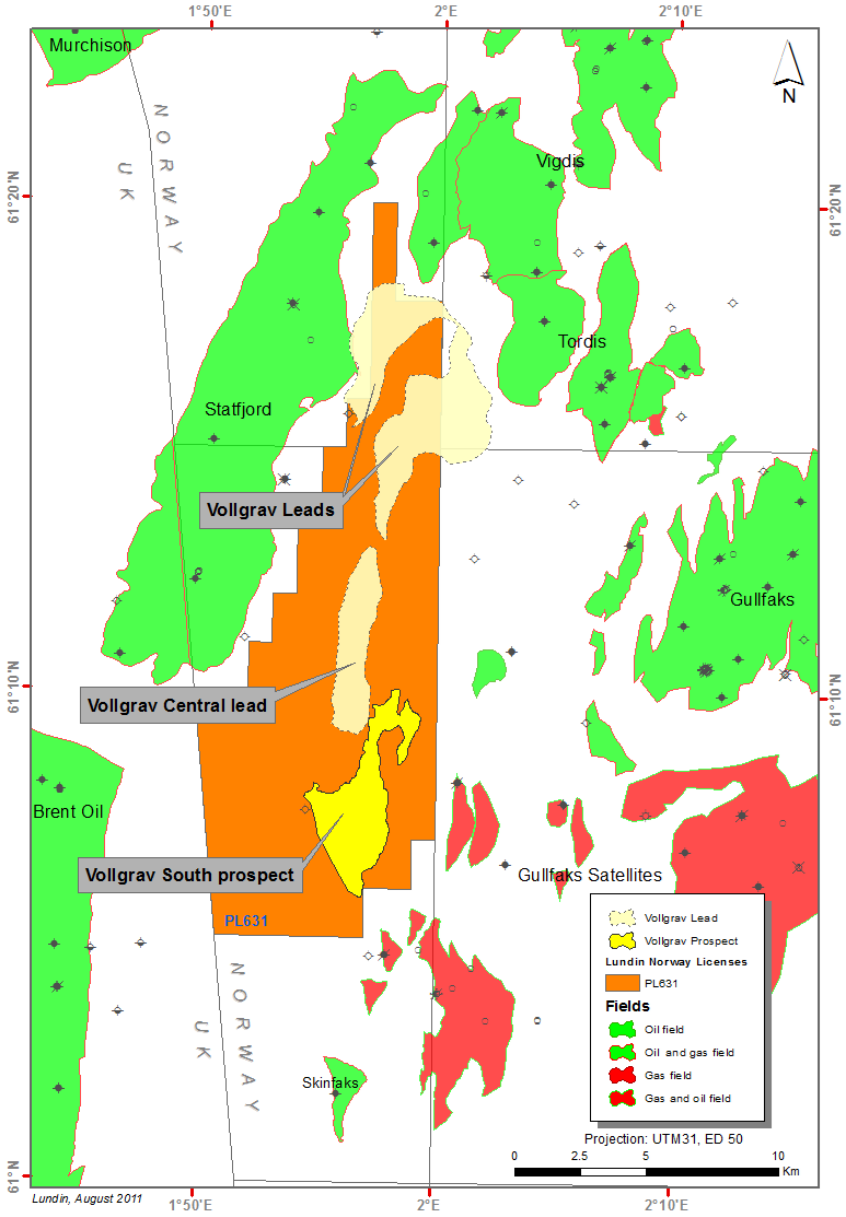

Figure 1: Prospect and leads defined in the license area which is located on the Tampen Spur between the Statfjord and Borg/Gullfaks fields.

2. Database

The work commitment was to reprocess 3D seismic and drill one well within 3 years from award. A seismic database map is shown in Figure 2. These obligations have been met with the reprocessing of the dataset WIN0901LNR13 and the drilling of well 33/12-10S. 33/12-10S was drilled in the following location:

- Coordinates: **X:** 442952.09 m East, **Y:** 6776647.02 m North
- **Lat:** 61° 7' 7.83'' N, **Long:** 1° 56' 28.67'' E
- **UTM:** (ED 50 Zone 31, CM 3° E)
- **Lines (WIN0901LNR13):** inline 1611 & crossline 3354
- **NPDID:** 7486

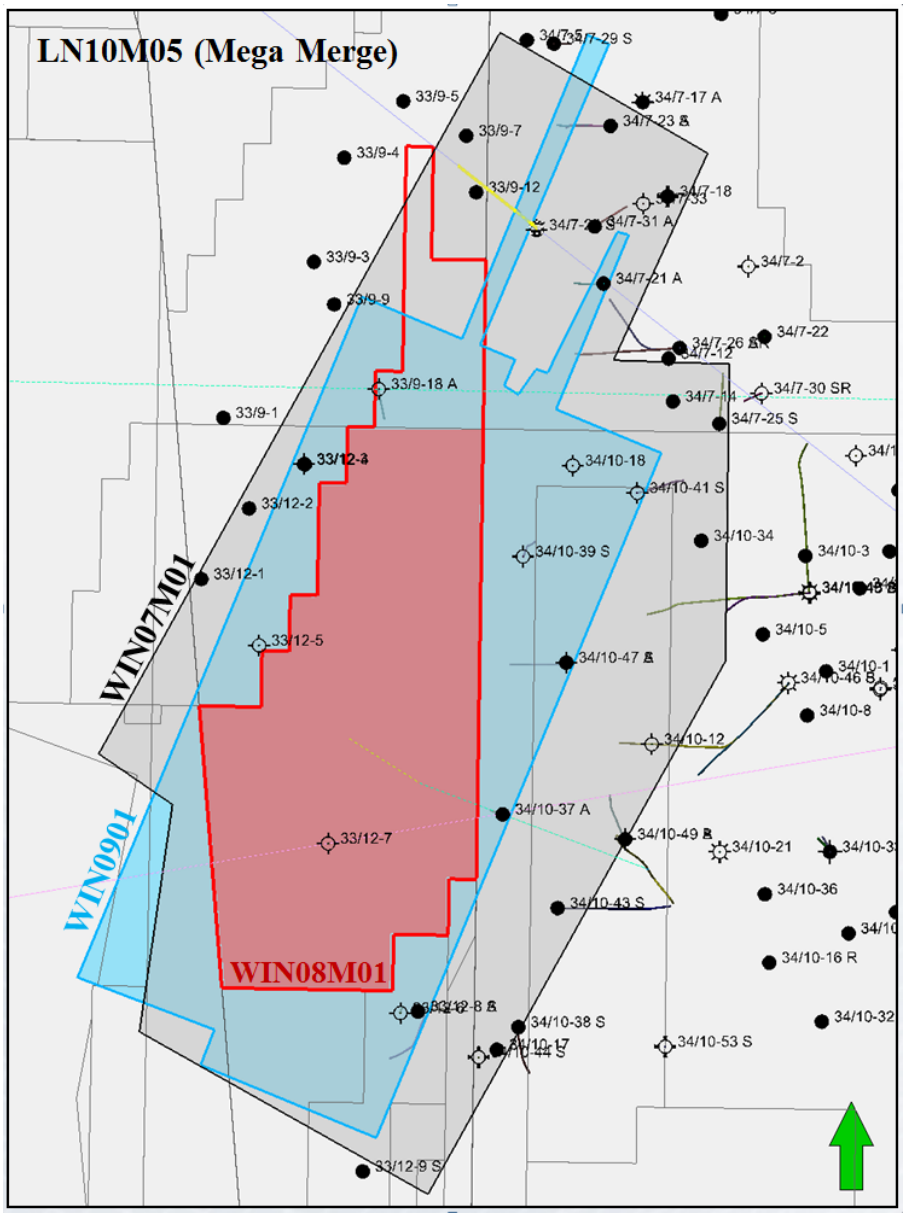

Figure 2: A seismic database map and location of wells.

The prospect Vollgrav South was defined as structural-stratigraphic combination trap. An Eocene lead was defined in the overburden above the Vollgrav prospect (amplitude anomaly with a stratigraphic trap). The Upper Jurassic organic rich Draupne Fm. was the primary source rock with a possible secondary source from the Heather Fm., with oil mature kitchens towards the south delivering hydrocarbon charge to up-dip traps in the Jurassic and Eocene formations.

The primary well objective was to test the reservoir and hydrocarbon potential of what was believed to be a stratigraphic trap with reservoir of upper Jurassic sandstone equivalent to the Magnus or Munin Mbrs. (Figure 3). The secondary well objective was to test the reservoir and hydrocarbon potential of an overlying early Eocene age Lead expected in the 17 ½" section.

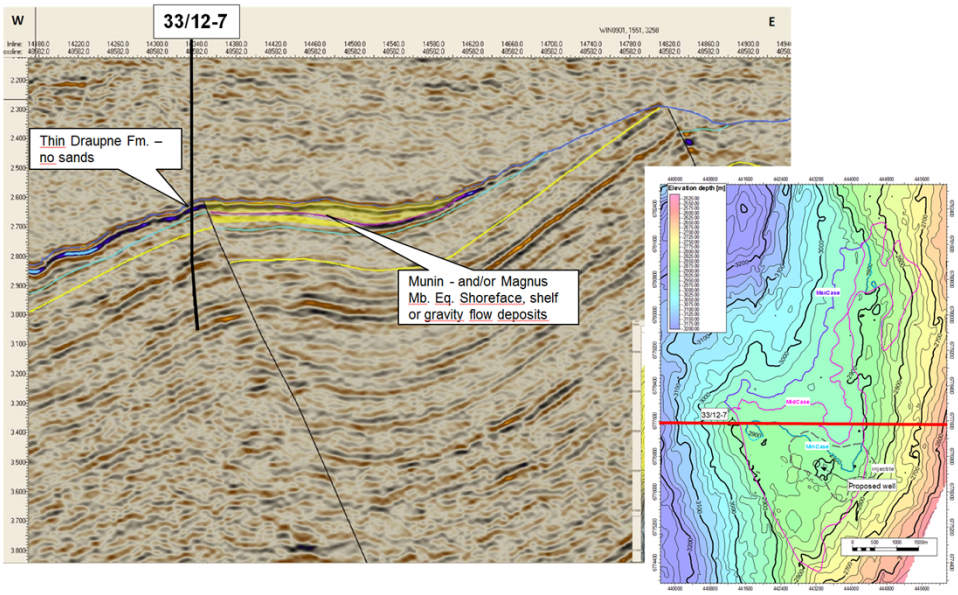

Figure 3 Seismic section through (UPDATE) the 33/12-10S well location showing the main pre-drill interpretations. The well was expected to hit one or two upper Jurassic sandy intervals. None of these intervals proved to contain sandstone and a high TOC Draupne shale was proven instead.

The exploration well 33/12-10S was spudded by the semi-submersible Bredford Dolphin 30.08.2014 in 2014 penetrating the Vollgrav South prospect. The overall results of the well were very disappointing as the well did not encounter reservoir rocks in the Upper Jurassic interval. The succession turned out to comprise Upper Jurassic Draupne Formation hot shales, defined as an oil prone type II source rock (**Error! Reference source not found.**). Sands with good reservoir properties was however encountered in the early Eocene section, but was found to be water bearing. Thin sands in the Lower Cretaceous Mime Fm. triggered the coring criteria and three cores where cut with a total length of 32.5m. The well was drilled to a maximum depth of 3097m MD (3072 m TVDSS) below mean sea level and terminated in Upper Jurassic Heather Formation. The water depth is 140m and the well has been permanently plugged and abandoned as a dry well on 23.10.2014.

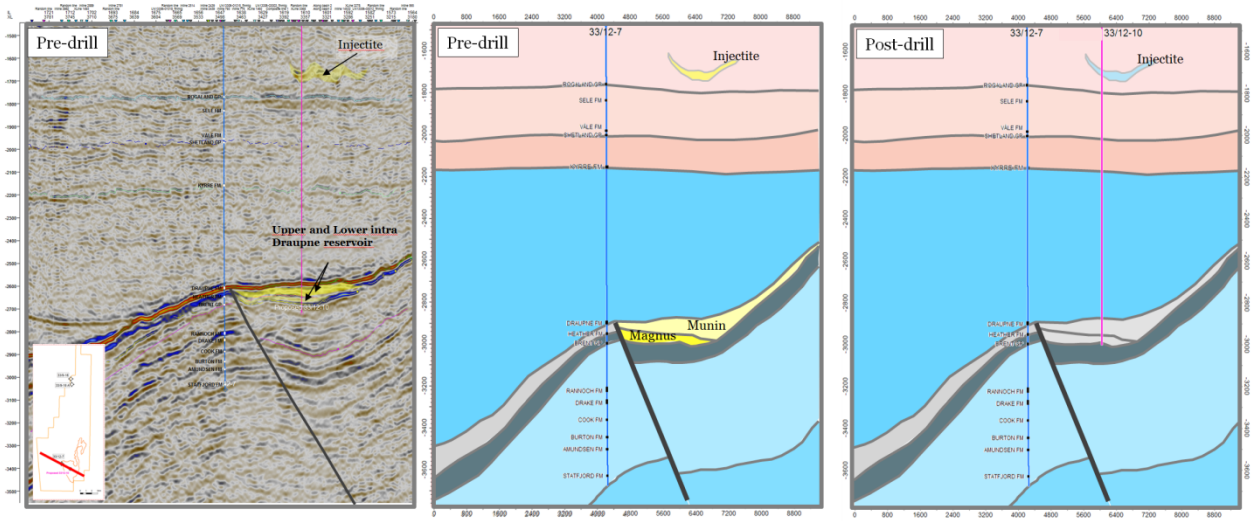

Figure 4 Pre and post drill interpreted cross-sections from seismic section in Figure 3. The Upper Jurassic section proved to contain high TOC Draupne shales instead.

3. Review of geological framework

The main targets consisted of a progradational shelf complex to deep marine turbidites in the Upper Jurassic Magnus (J64) and Munin (J74) Mbrs. (Figure 5). A correlation from SE towards NW of wells 33/9-5, 33/9-15, 33/9-16, 33/9-8, 33/9-17 and 33/9-11 on the Tampen Spur provided a good depositional analogue for the Magnus/Munin systems in the application area (Figure 6).

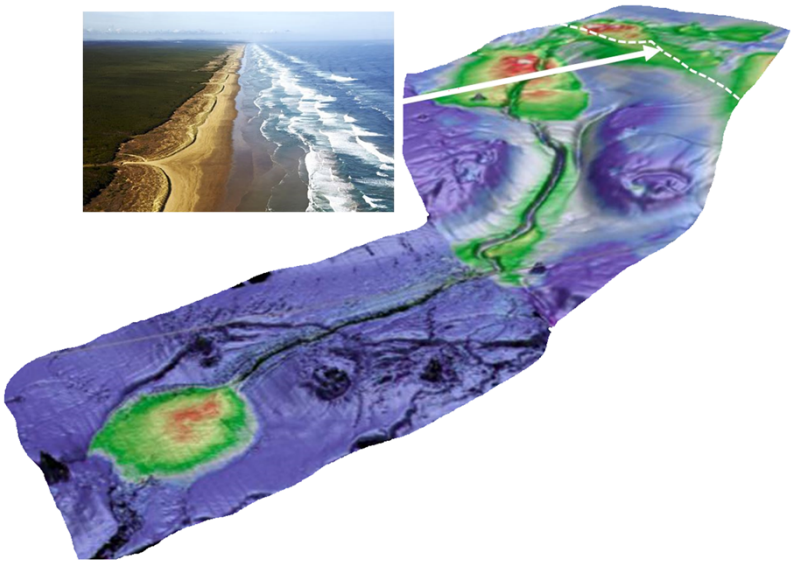

Figure 5 Modern analogues of Magnus and Munin Member sandstones. Deep water gravity flow deposits off West Coast of Africa and Ninety Mile Beach, New Zealand.

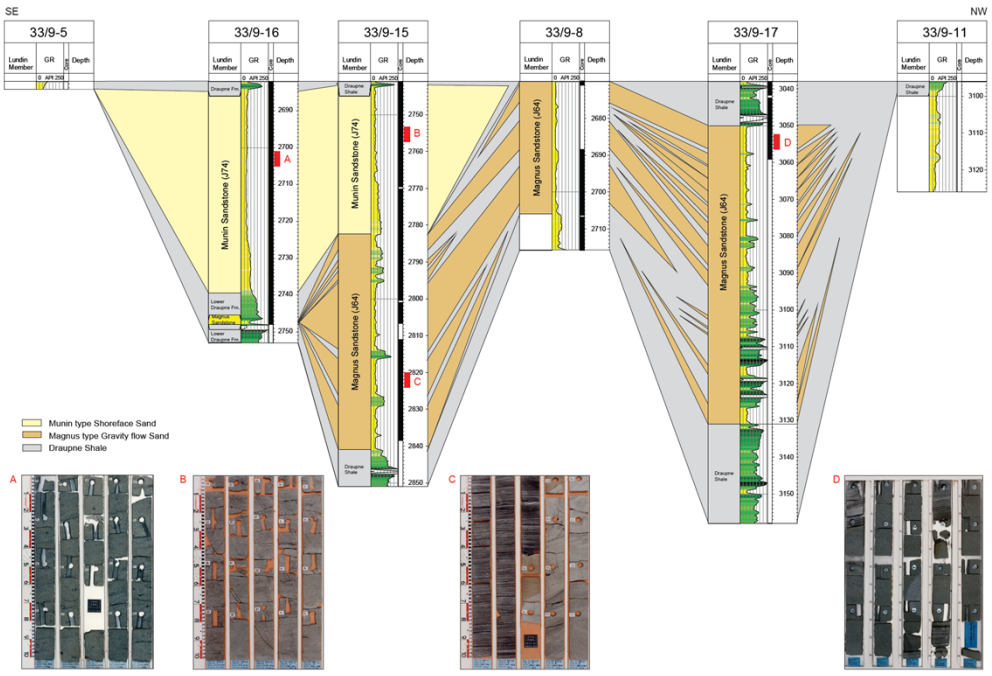

Figure 6 A SE to NW correlation of Upper Jurassic sediments shed of the Tampen Spur. Note the underlying Magnus sandstones (brown) alternating with Draupne shale overlain by Munin sandstone shoreface prograding from the SE towards the NW and pinching out somewhere between 33/9-15 and 33/9-8.

In addition to the work program special studies have been performed and include:

- Core description and sedimentological studies of neighborhood wells.
- Petrography/reservoir
- Geochemistry
- Seismic frequency blending

The seismic interpretation (both regionally and locally), geochemical analysis and evaluation of prospectivity was carried out mainly during 2012.

The APA 2011 application contained two upper Jurassic prospects and one upper Jurassic lead; the Vollgrav, Vollgrav South and Vollgrav Central respectively. This was later adjusted to one prospect (Vollgrav South) and two leads (Figure 7) baser on seismic interpretation, regional geological/sedimentological studies and interpretation of well data from core descriptions. The early Eocene lead was unchanged. New seismic interpretation also changed the Vollgrav South prospect outline. PL631 comprise 127.932 km2 of blocks 33/12 and 19.907 of block 33/9. The blocks are situated in sub-basin on the Tampen Spur between the Statfjord and Borg/Gullfaks fields. A structural map is shown in Figure 8.

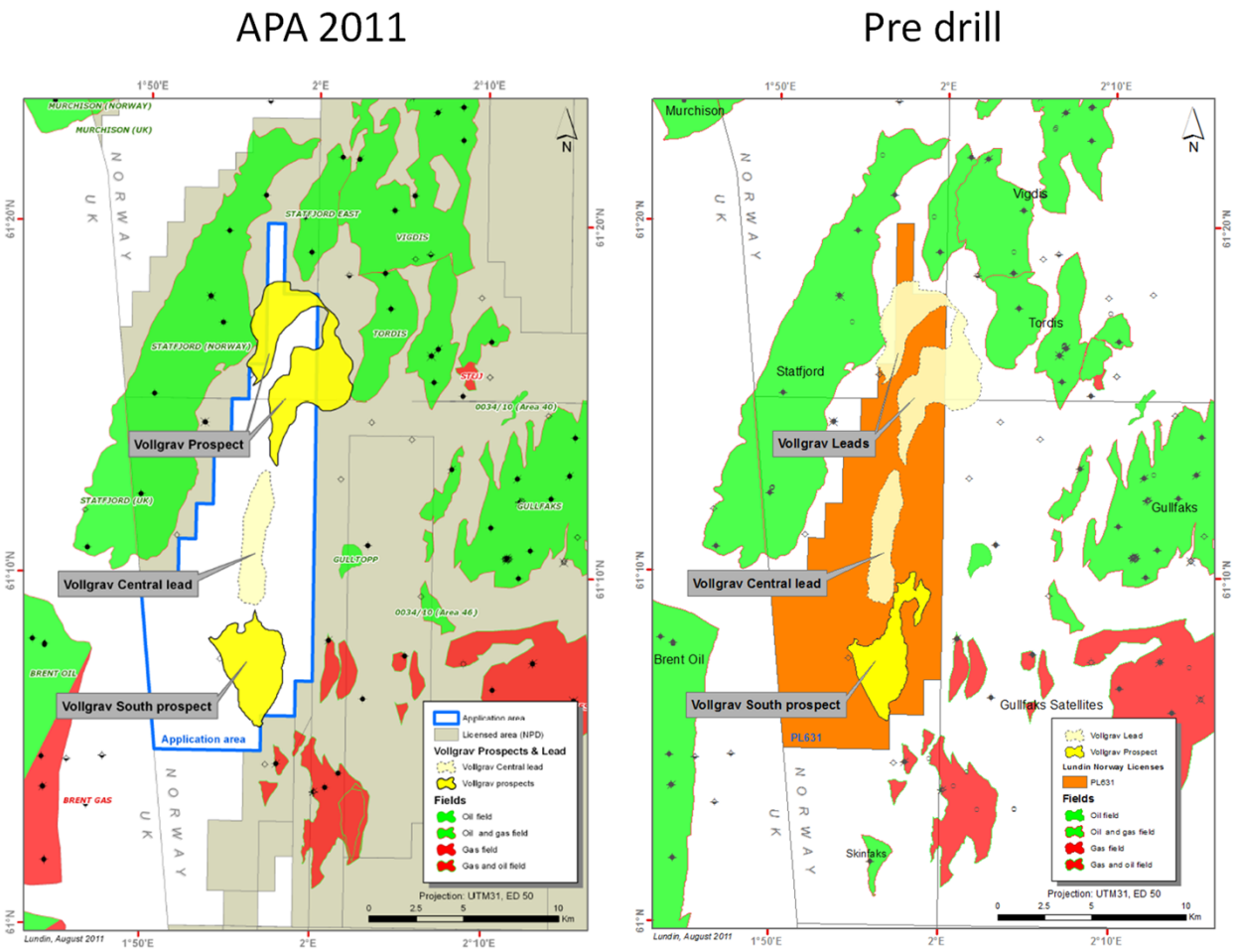

Figure 7 Changes in prospect classification from the APA 2011 application and pre-drill 2011.

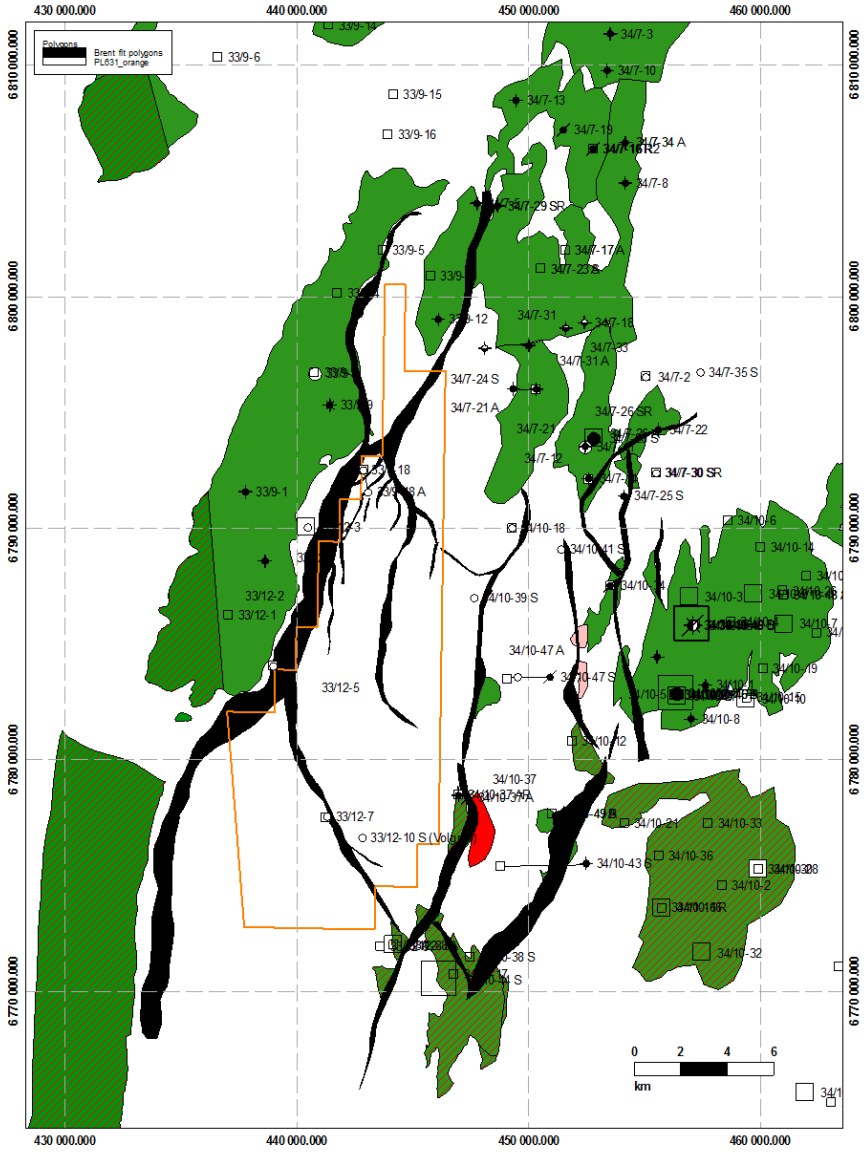

Figure 8 Structural map including fields and wells in the region.

4. Prospect update

The evaluation of PL631 resulted in a prospect portfolio consisting of a one prospect (Vollgrav South) and two leads (Vollgrav, Vollgrav Central) in the Upper Jurassic strata and one lead in sands of early Eocene age. The probability of discovery In the Vollgrav South was set to 16% with likelihood of reservoir (considered the main risk) set at 36%, source and migration to 80%, trap with an effectiveness of 60% and retention of 90%. The Vollgrav South prospect appeared most promising as the up-dip seal was thought to be to high risk in the Vollgrav lead. Due to the disappointing results of well 33/12-10S the volumes for the Vollgrav South prospect has been signed off. The Eocene lead was also dry. The remaining targets are defined as leads as the Vollgrav prospect was downgraded from prospect to lead based on license work and well results, and no volumetrics is therefore presented.

Table 3 Volumetrics (Deterministic) - Vollgrav of November 2013 (TA UT)?.

Area			Northern North Sea
Block			Blocks 33/9 & 33/12 (parts)
License			PL631
Name			Vollgrav
L/P or Minor disc.			P
Operator			Lundin
Prospective resources	Oil	(MMstb)	95.0
	Gas	(Bscf)	60.0
On Block		%	0.6
Lundin interest		%	0.6
CoS		%	0.1
Gross resources	Oil	(MMstb)	54.150
	Gas	(Bscf)	34.200
	Oil & Gas	(MMboe)	59.850
Net resources	Oil	(MMstb)	32.490
	Gas	(Bscf)	20.520
	Oil & Gas	(MMboe)	35.910
Risked net resources	Oil	(MMstb)	3.119
	Gas	(Bscf)	1.970
	Oil & Gas	(MMboe)	**3.447**

5 Technical evaluations

Technical/economic studies have been performed in case of success and 100% gross economics include Vollgrav South pre-drill volumes estimated to 55 mmbbl with 25% CoS and 1st Oil in 2020. CAPEX (REAL2013) was estimated to 5.3 BNOK ($16.8/bbl) including pre PUD. Production was suggested via subsea tieback to the K Template on Gullveig Field (Gullfaks Sør) 4km away. CAPACITY fro oil was estimated to 4 686 Sm3/d using 7 wells (5 OP, 2 WI). CAPEX estimated to start 2017. OPEX (REAL2013) estimated to 3.8 BNOK ($12.1/bbl) including oil Transport at 23.2 NOK/bbl.

6. Conclusions

PL631 initially contained 2 prospects and one lead (Vollgrav South, Vollgrav and Vollgrav Central) of which the former was drilled in the 33/12-10S well in 2014. The well proved no hydrocarbon bearing reservoir within the prospect intervals and was characterized as dry. There are still prospects/leads in PL631, but due to the very disappointing results of the 33/12-10S well the risk of hitting a non-reservoir, a poor reservoir or a reservoir with no seal integrity has significantly increased. None of these have been upgraded to drillable prospects. **The decision to relinquish the license was made by the partnership the ??th of November 2015**.