



PL 813 Licence Relinquishment Report

Reference is made to the notification on license decision to NPD dated 03.12.2018, regarding the drop decision in production licence 813.

This report outlines the key license history, the database, prospects and the technical evaluation of the production license 813 (PL813) and fulfills the requirement by the NPD for a license status report within 3 months of relinquishment.

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1 Key licence history

PL813 is located within block 15/5 and 15/6 in the North Sea, in the northern-most extension of the Sleipner Terrace in the Greater Sleipner Area. PL813 was awarded through the APA 2015, with the same partnership as in the Gina Krog Unit (part of PL303, PL040, PL029C and PL029B), with the Elli prospect as the main and only prospect. During the license period, the prospect has been firmed up through a seismic reprocessing in 2016/2017 with the MC3DQ16STZ16 as the outcome, and subsequent update in G&G evaluation in 2018. A further seismic reprocessing was carried out in 2017/2018 with the MC3DQ16_ST0730_DAZ as outcome and has been used as a sensitivity check for the depth map. A one-year extension of the license terms was applied for in December 2017 and granted by OED 19th April 2018.

The distribution of PL813 shares is:

- Equinor Energy AS, Operator 58,7 %
- KUFPEC 30 %
- PGNiG 8 %
- Aker BP 3,3 %

License area has been evaluated on all relevant seismic surveys. The Elli prospect is a three-way closure, and the reservoir model for is the Middle Jurassic Hugin Fm. Screening of the shallower deposits showed no potential within PL813.

Work program – Phase 1

Work obligations and Decisions	Expiry date	Status
Reprocessing 3D seismic data		Approved
Decision to drill or relinquish	05.02.2019	Drop decision

The following Management and Exploration committee meetings have been held in the license:

- EC/MC meeting - 13.04.2016
- EC/MC meeting - 06.12.2016
- EC meeting - 20.06.2018

2 Database

Initial interpretation for prospect Elli was based on ST11MZ10 seismic cube. As a part of the license obligations the MC3D-Q162013 3D seismic was reprocessed, resulting in a 580 m² PSDM volume and a Pre-stack seismic inversion cube covering the entire Gina Krog Unit and extending to PL813 and Elli prospect. Data acquired by the wells 15/6-13, 15/6-13A and 15/6-13B and 15/4-14S were also analysed and incorporated in the overall understanding of the area, as per the work program agreed for PL813.

Key wells are 15/6-14S, 15/6-B-2, 15/6-2, 15/6-4, 15/5-1, 15/6-9 (A, B, S), 15/5-7 (AT2), 15/6-11, 15/6-12, 15/6-13 (A, B), 16/6-7, 15/6-8, 15/6-B-17 and 15/5-2.

3 Review of geological framework

The application securing the PL813 in 2015 focused on the Middle Jurassic Hugin Fm., located next to the Gina Krog Field.

The main risk for the Middle Jurassic play in the area is reservoir presence, as a minimum net reservoir thickness of circa 15 meters is necessary for a success case and the risk is related to the likelihood of not having sufficient thickness of the Hugin Formation due to the expected facies change towards the northeast. Furthermore, as it is not possible to interpret the Top Hugin Formation, an alternative strategy used for this area is to construct the Top Hugin isochore by krieging the Hugin thickness observed in wells and constraining the Top Hugin depth map based on the interpreted Top Sleipner depth map (base limit) and BCU depth map (upper limit).

The Elli prospect was worked up by studying all the available well and seismic data. The prospect was heavily dependent on a neighbouring well (16/6-14S), planned and drilled end-2017, in a similar down-faulted segment of the Gina Krog field. The results of the studies improved understanding of the opportunities and provided support for volumetric input parameters and risk assessment.

In detail, the studies/work completed for PL813 were the following

- Reprocessing seismic data with focus on the Middle Jurassic Hugin Fm. Play
- New mapping of key horizons for Top Hugin isochore on 2016/2017 3D data (MC3DQ16STZ16)
- Incorporate new well results for isochore and prospect assesement (16/6-14S)
- Sensitivity check of Top Hugin depth map on 2018 3D data (MC3DQ16_ST0730_DAZ)

4 Prospect update

Initial reservoir model for Elli is the Middle Jurassic Hugin Fm., composed of marginal marine to marine sediments from Early Callovian to Middle Callovian in age. Main risk was considered to be reservoir presence, with additional key risk being trap seal integrity as three-way faulted closure have statistically been yielded poor results in the area.

Well 16/6-14S, which drilled an unproven segment of the Gina Krog field named Central-3, proved reservoir presence but was dry. This result, paired with an update of the Hugin Fm. isochore based on the Gina Krog geomodel, has negatively impacted the outlook for the Elli prospect. The prospect container (GRV) has become too constrained to hold any interesting hydrocarbon accumulations based on the business case assessed.

Table 1 Volumes and risk for the Elli prospect.

Segment	Pg	Recoverable MSm ³ OE		
		P90	Mean	P10
Elli	0.21	0.1	0.4	1.1

5 Technical evaluations

A business case based on a long reach well from the Gina Krog platform was evaluated. The producer was planned with a horizontal section of 500 meters in the reservoir. Pressure depletion with gas lift has been assumed for the well. The business case is negative due to low volumes.

6 Conclusions

The work programme for PL813 has been fulfilled. The prospect Elli has been evaluated within the specified time frame and geological and geophysical studies have been completed. After a full evaluation the license recommends to drop the licence due to the negative business case. The PL813 Management Committee has therefore decided to allow the license to expire on 5th of February 2019.

Kind regards
Jørn-Atle Erichsen
PL813 MC Chairman
Equinor Energy AS

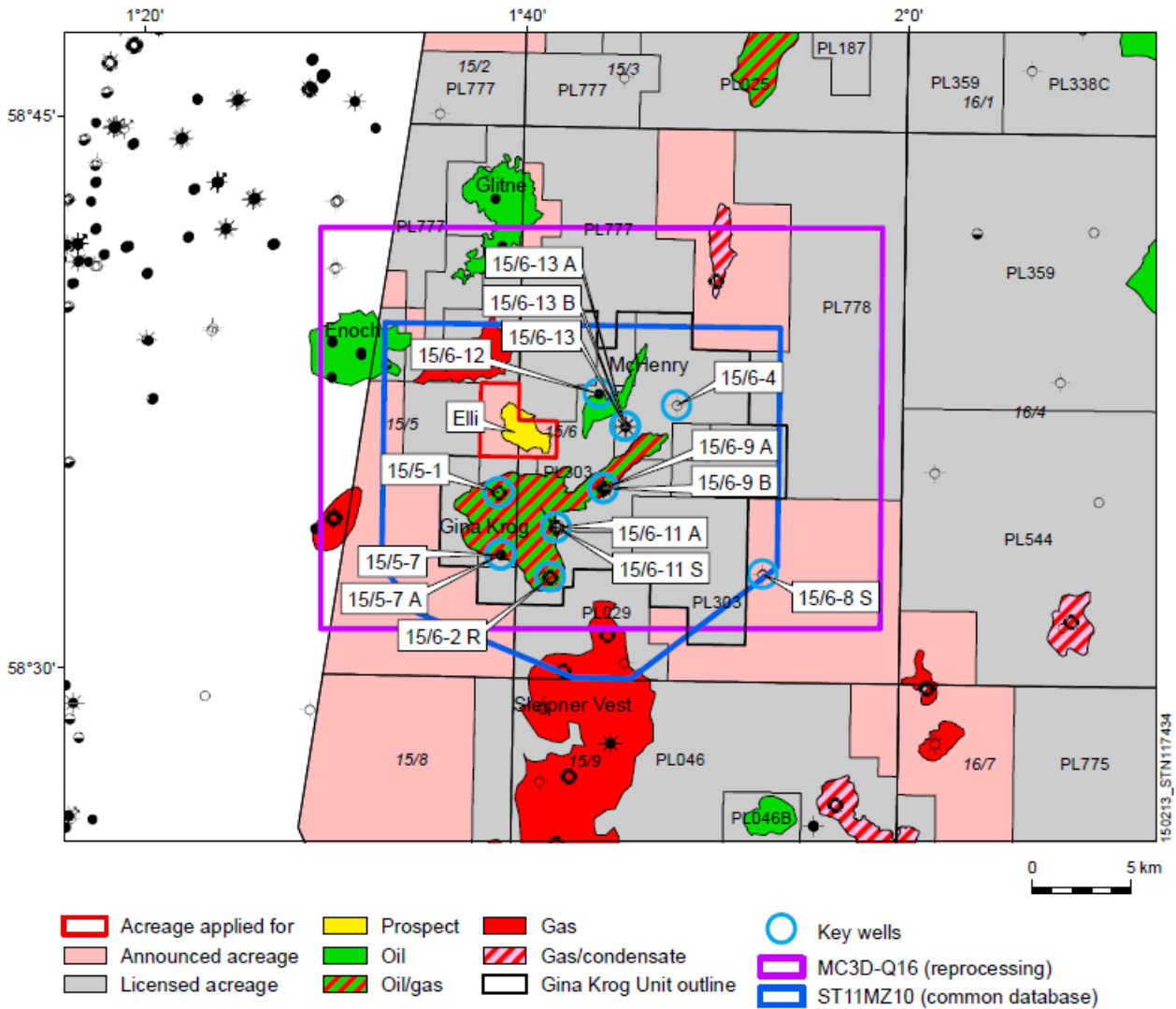


Figure 1. License overview map with discoveries, wells, prospect outline (yellow polygon), seismic surveys and PL813 license area (black outline).

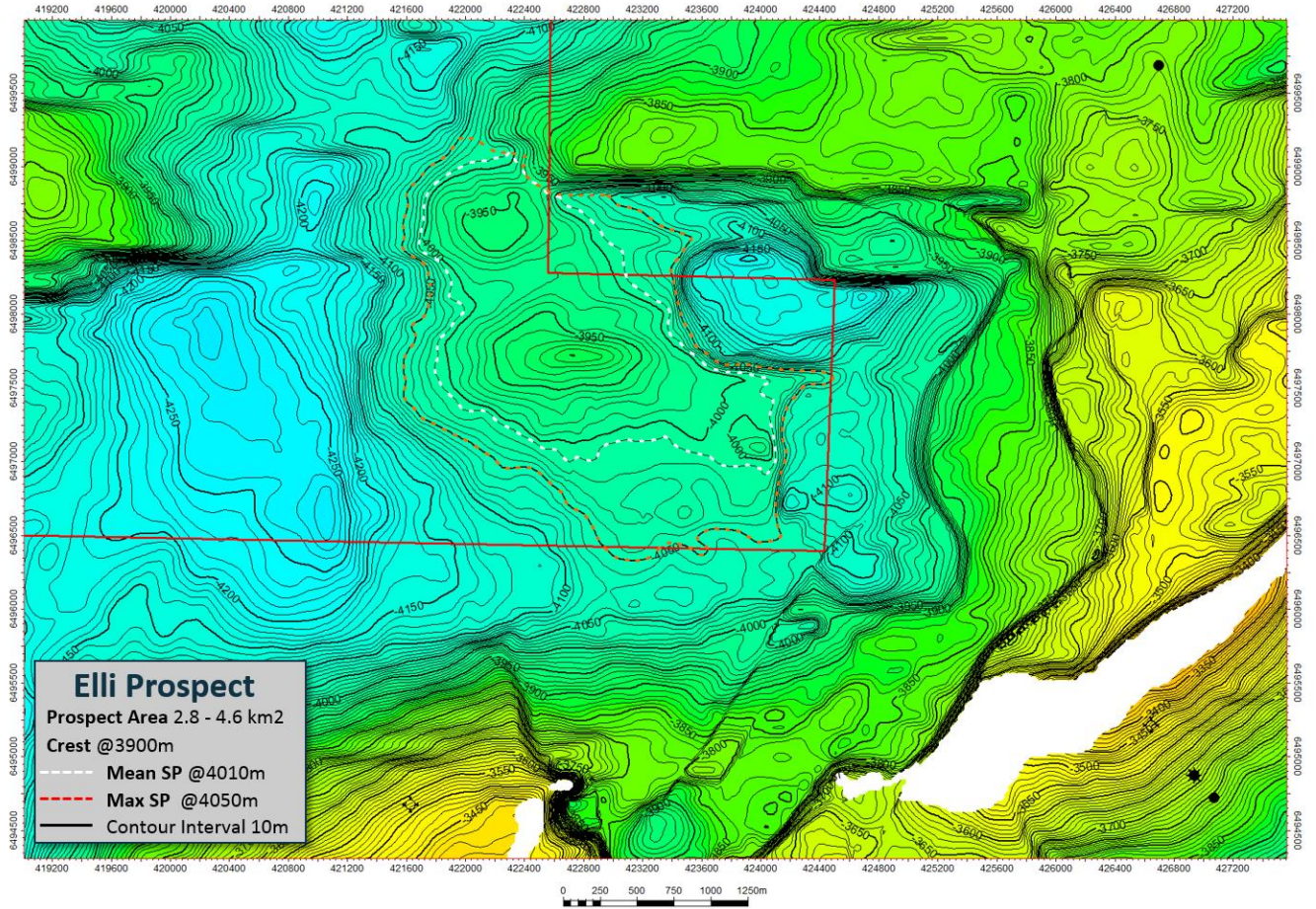


Figure 2 Top Hugin structural depth map with Elli prospect mean polygon (white) and license boundary (red) and key wells, based on ST11MZ10 and used during APA 2015 application.

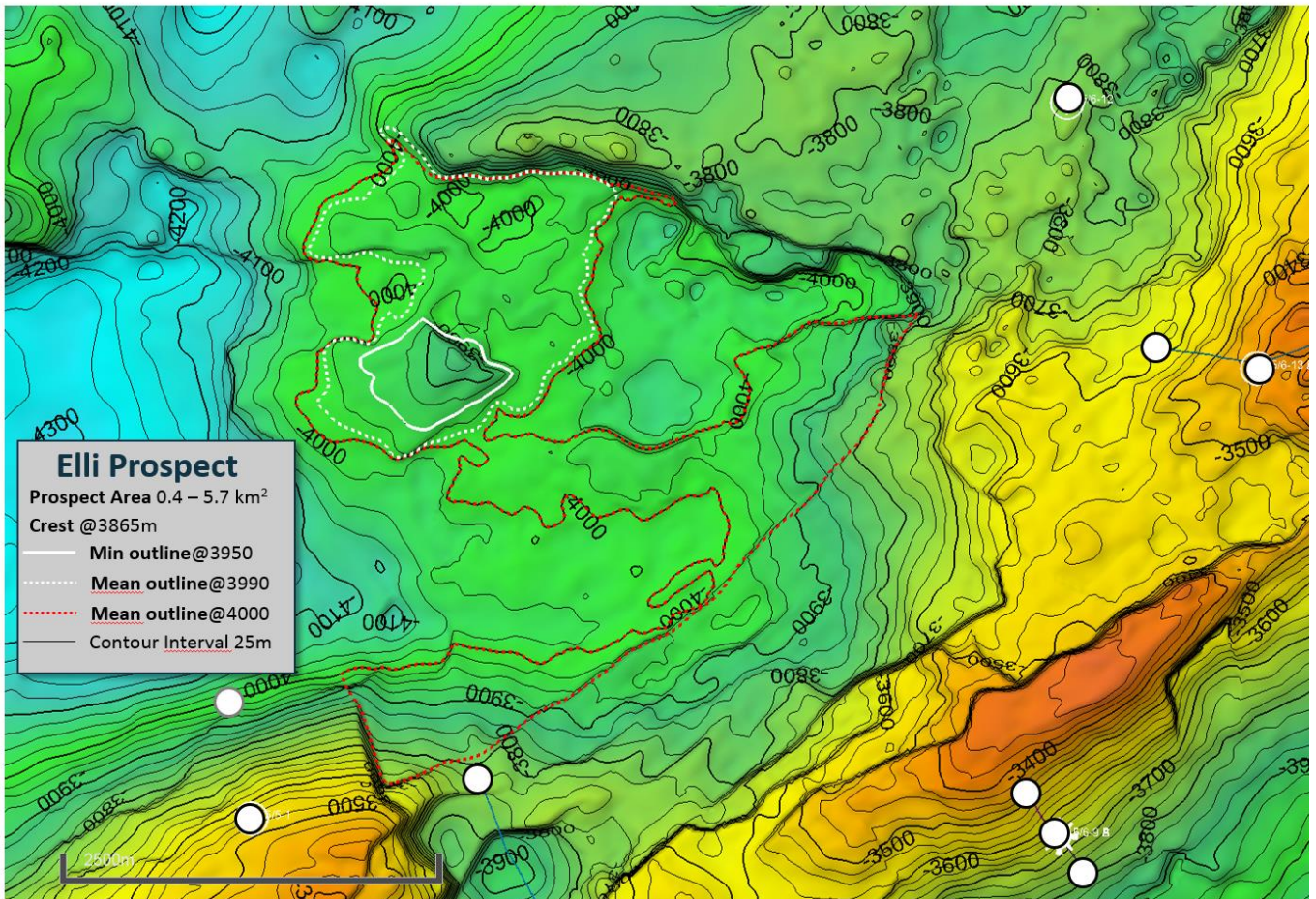


Figure 3 Top Hugin structural depth map with Elli prospect mean polygon (dotted white) and key wells, showing very constrained minimum outline for prospect (white line), based on MCDQ16 3D seismic reprocessing.

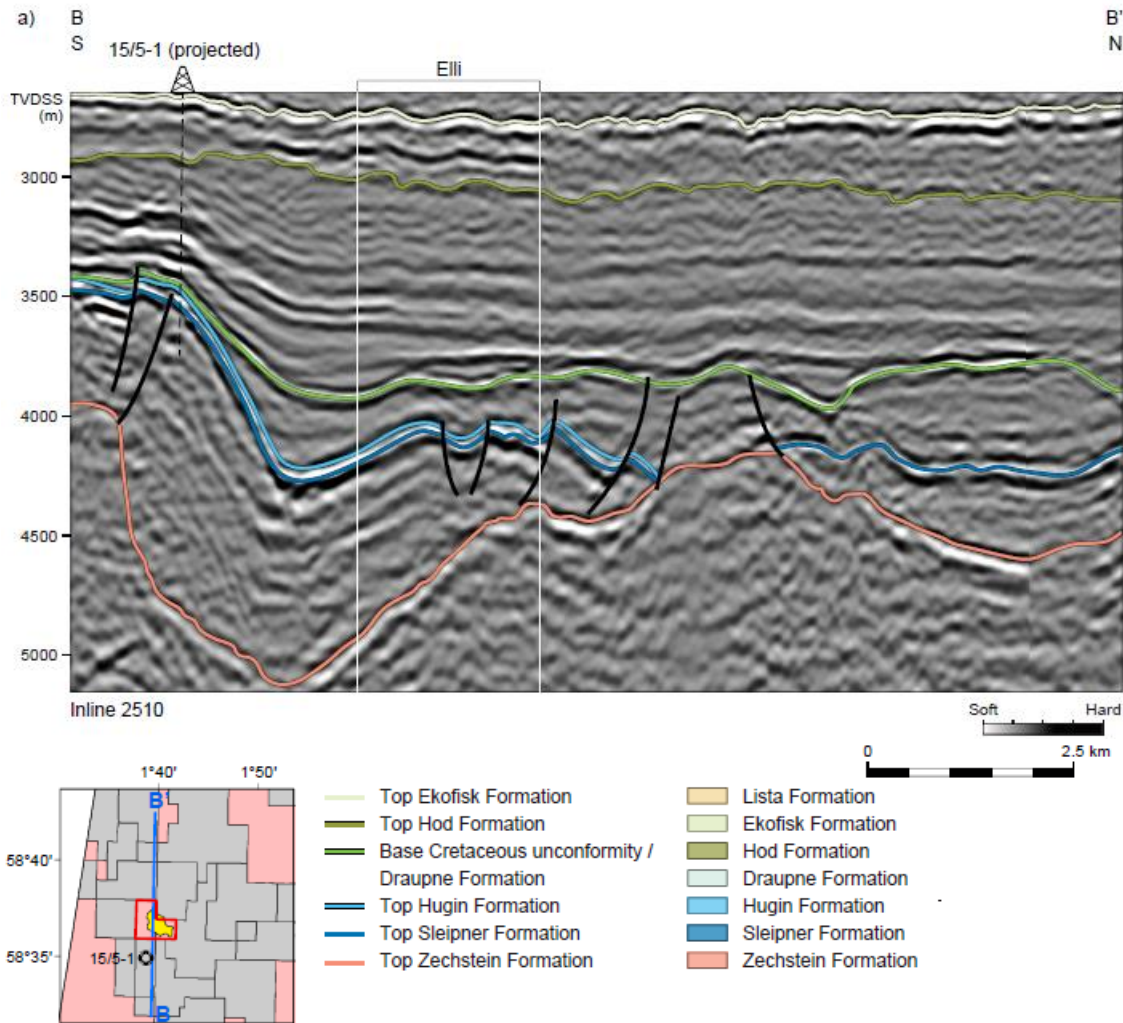


Figure 4 Seismic line through Elli prospect showing key horizons and faults.