



PL 990 License Relinquishment Report

Reference is made to the notification on PL990 license drop decision to NPD dated 15.10.2020.

This report outlines the key license history, the database, prospects and the technical evaluation of the production license 990 (PL990) 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

PL990 is located within blocks 35/7,34/9 and 35/10 in the Northern Viking Graben, 12 Km southwest of the Vega Field. PL990 was awarded through the APA 2018 with the Upper Jurassic Kvernbit prospect as the main prospect. Secondary prospectivity was identified in the Mimung Nord prospect at the Brent Group level below. Additional prospectivity included Brent Group level Mimung N1, N2, N3 and Stjertand leads and the Paleogene Gargoyle lead. During the license period, the Kvernbit and Mimung Nord prospects has been firmed up through new interpretation on the CGG18M01 PSDM survey and subsequent G&G evaluation and tec-ec in 2019. Equinor as the Operator suggested a drill decision on the Kvernbit/Mimung prospect in Q1 2020 but did not receive partner support. Not being able to recruit new partners then forced a drop decision.

The distribution of PL990 equity has been:

- Equinor Energy AS, Operator 40 %
- Wellesley Petroleum AS 30 %
- DNO Norge AS 30%

License area has been evaluated on all relevant seismic surveys. The Kvernbit prospect comprise two upper Jurassic segments, Segment 1 and Segment 2. The reservoir model for Kvernbit is deep-marine intra-Heather Formation sandstones. The Mimung Nord prospect lies within an untested Jurassic rotated fault block, bounded by a NW-SE trending main boundary fault in East and strata dipping towards West. Mimung Nord have two segments, Mimung Nord Brent and Mimung Nord Lower Cook.

Work program – Phase 1

Work obligations and Decisions	Expiry date	Status
Geology- and geophysical studies		Approved
Decision to drill or relinquish	01.03.2020	Drop decision (formalized 15/10 2020, see above)

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

- EC/MC meeting - 12.04.2019
- EC/MC meeting - 13.11.2019

In addition, the following work meeting has been arranged in the license:

- EC work meeting – 23.01.2020

2 Database

Common seismic database is the CGG18M01-PSDM survey covering and area of 935.56 Km² and the CGG17M01-PSTM survey covering the same with extensions towards east and south, in total 1606.198Km², see Figure 1. These surveys are the basis for the seismic interpretations in the license.

Wells in common database: 34/12-1, 35/7-1 ST2, 35/8-2 T2, 35/8-6 S, 35/10-1, 35/10-2, 35/10-3, 35/11-3 S, 35/11-6, 35/11-12, 35/11-18 &-18A, 35/11-20 S, 35/10-4 S & -A, 35/11-22 S, 35/4-2.

3 Review of geological framework

The application securing the PL990 in 2018 spanned prospectivity from Middle Jurassic to Paleogene. The main prospect of the application was the Upper Jurassic Kvernbit Oxfordian intra-Heather prospect. Secondary prospectivity was identified in the underlying Mimung Nord prospect located at the Brent Group level.

The main risk for the Kvernbit and Mimung prospects was reservoir quality. The Kvernbit Oxfordian sandstones are located at a considerable burial depth and may thus display limited reservoir properties.

The Kvernbit and Mimung Nord prospects was worked up by studying all the available well and seismic data. 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 PL990 were the following

- Remapping with focus on the Jurassic prospectivity on CGG18M01 PSDM
- Remapping of the Kvernbit and Mimung Nord prospects
- Well-tie of key wells
- Upper Jurassic reservoir quality and prediction (petrology & sedimentology)
- Brent reservoir quality study (petrology)
- PVT studies
- Seismic data analysis for enhanced understanding of depositional models
- Petrophysical analysis of the intra-Heather, Brent and Lower Cook reservoirs
- Prospect Evaluation
- Kvernbit and Mimung Nord prospect volume calculations and risk estimation
- Kvernbit and Mimung Nord prospect technical economical evaluation

4 Prospect update

The initial reservoir model for Kvernbit was deep-marine reservoir sandstones belonging to the Upper Jurassic Heather Formation. The Kvernbit prospect is divided into an upper segment of likely Kimmeridgian age (1) and a lower segment of Oxfordian age (2). The main risk is reservoir quality due to the relatively deep burial depth. The underlying Mimung Nord prospect has reservoir units belonging to the Brent Group and Lower Cook Formation in the Dunlin Group. Main risk for the Brent and Cook reservoirs are reservoir quality due to its burial depth and temperature. Both Kvernbit and Mimung Nord prospects are situated in a westward dipping Mesozoic fault block which experienced Late Jurassic rotation, setting up a structural trap. Risk related to charge and migration is considered low. Upper Jurassic shales are present day mature in the area.

Table 1 gives an overview volumes and risk for the Kvernbit and Mimung Nord prospect

Table 1 Volumes and risk for the Kvernbit and Mimung Nord prospects.

Segment	Pg	Recoverable MSm ³ OE		
		P90	Mean	P10
Kvernbit segment 2	0.28	1.5	5.2	10.1
Kvernbit segment 1	0.20	1.9	5.2	10.0
Mimung Nord Brent	0.43	0.8	2.6	5.1
Mimung Nord Lower Cook	0.33	0.9	1.8	3.0

5 Technical evaluations

A business case based on a new field development for a discovery in Kvernbit and Mimung Nord has been performed in 2019. The Kvernbit and Mimung Nord prospects has been evaluated with a subsea tie-back to Kvitebjørn, 35 Km southwest.

6 Conclusions

The work programme for PL990 has been fulfilled. The Kvernbit and Mimung Nord prospects has been evaluated within the specified time frame and geological and geophysical studies have been completed. After the drill or drop milestone Equinor has been unsuccessful in getting a new partner in licence, partly due to challenging market conditions related to Covid-19 situation. PL990 Management Committee has therefore decided to allow the license to expire on 31st of August 2020. Equinor will continue to evaluate the area with a view to potential exploration drilling.

Kind regards
 Tom Dreyer
 PL990 MC Chairman
 Equinor Energy AS

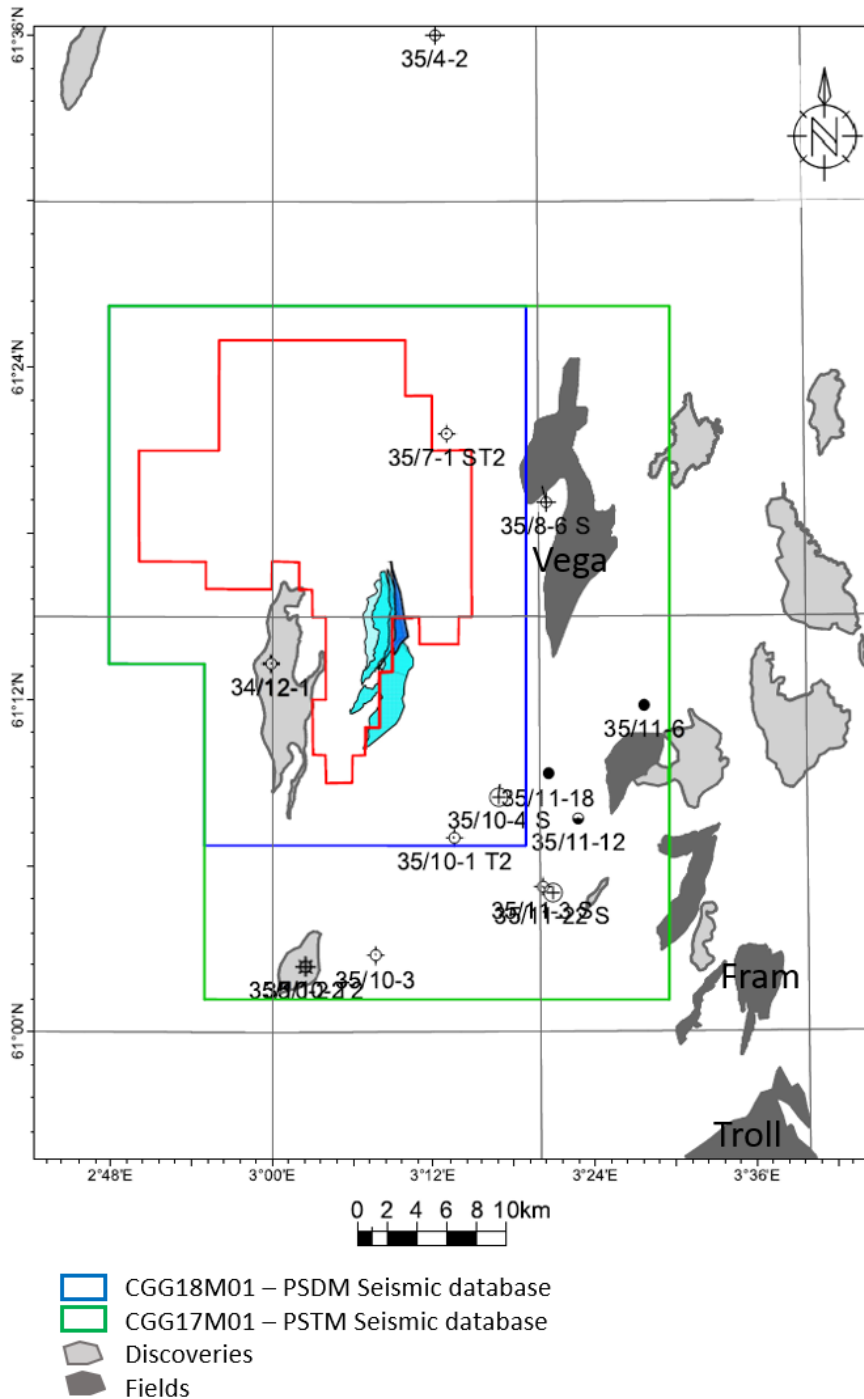


Figure 1. License overview map with Fields, discoveries, key wells, prospect outlines (blue polygons), seismic surveys and PL823 license area (red outline).

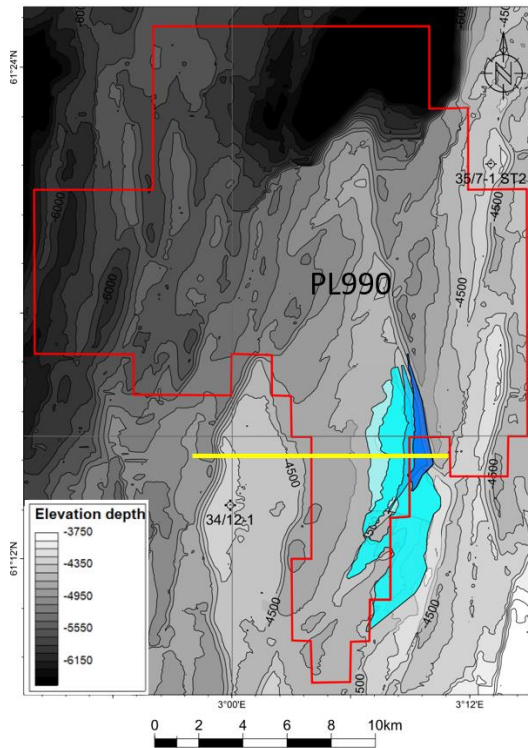


Figure 2 Top Brent depth map with Kvernbit and Mimung Nord segment polygons, licence boundary (red) and seismic horizons location (yellow)

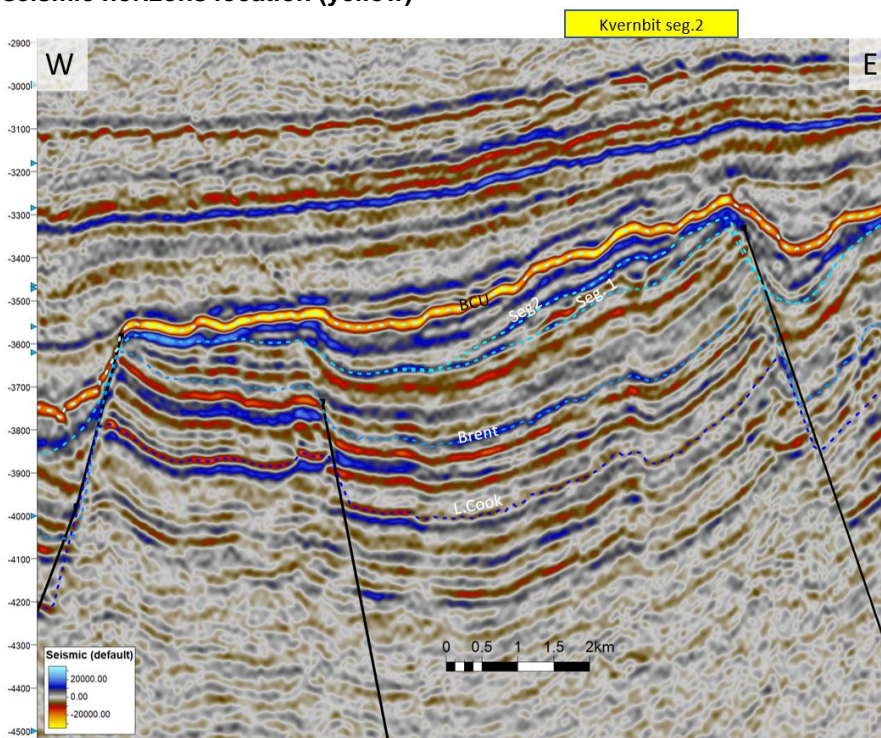


Figure 3 CGG18M01-NVG-FINAL-KI-PSDM-FULL X-line 28748 through Kvernbit and Mimung Nord prospects with key seismic horizons.