PL767/767 B relinquishment report

2020

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Contents

1. Summary and conclusion

The evaluation of PL767 resulted in a prospect portfolio consisting of two Cretaceous prospects, Setter and Pointer. Both prospects were drilled by the exploration well 7121/1-2 S during January 2019 to March 2019.

The well had some oil shows but was classified as dry. The shallowest target (Setter) have probably not received any hydrocarbon charge, while the deeper target (Pointer) suffered from poor reservoir properties.

Remaining prospectivity in PL767/767 B is assessed to be low. A decision to relinquish the licenses was made by the partnership in November 2019.

2. Introduction

The licenses PL767 and PL767 B are located in the northern part of the Hammerfest Basin in the SW Barents Sea (Fig. 1). PL767 comprises 211 km^2 of blocks 7120/3 and 7121/1, 2 and 4. The PL767 B comprises 19 km^2 of the blocks 7120/3 and 7121/1, 2 and 3 and 7122/1.

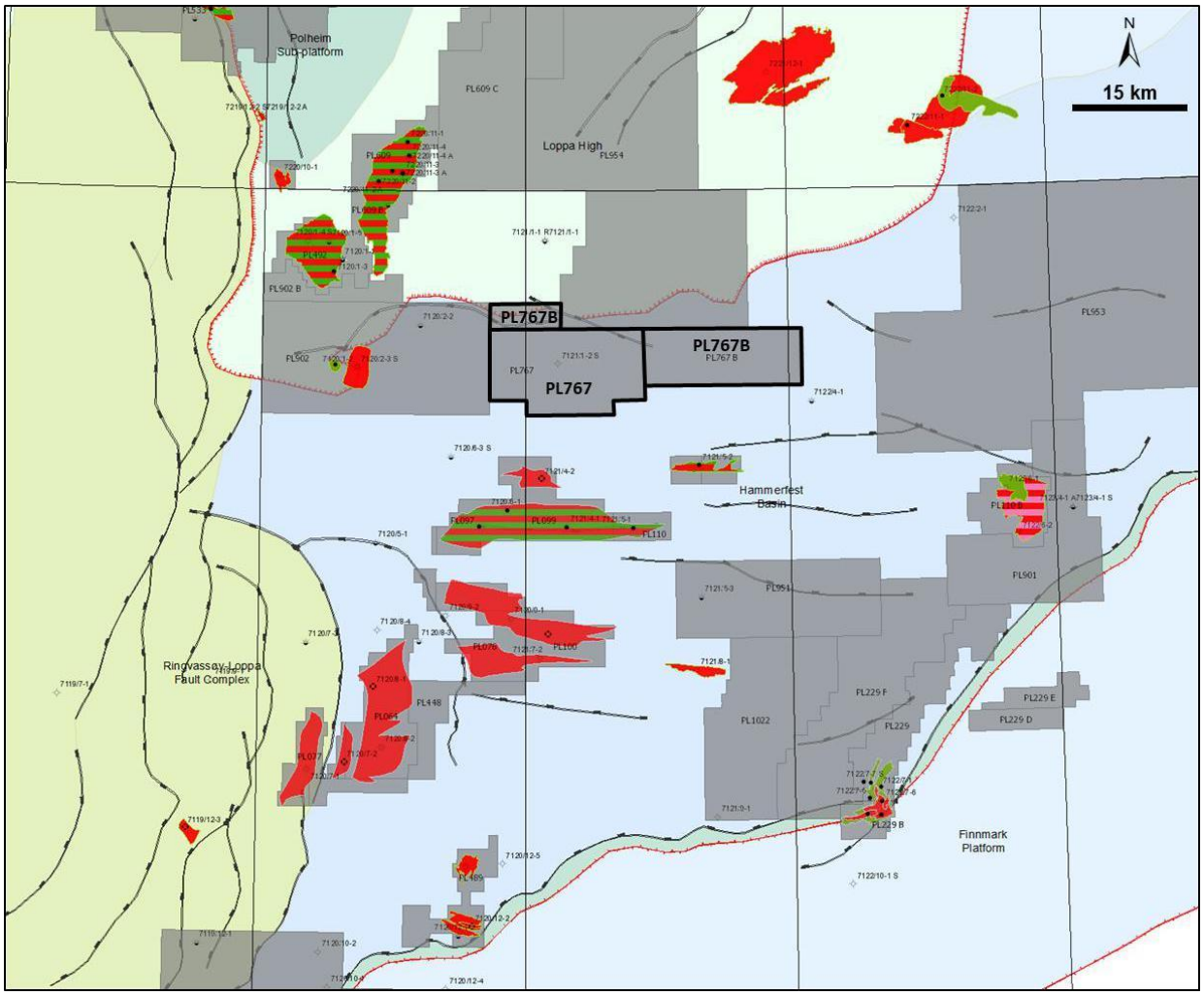

Figure 1. PL 767/PL767 B location with structural elements.

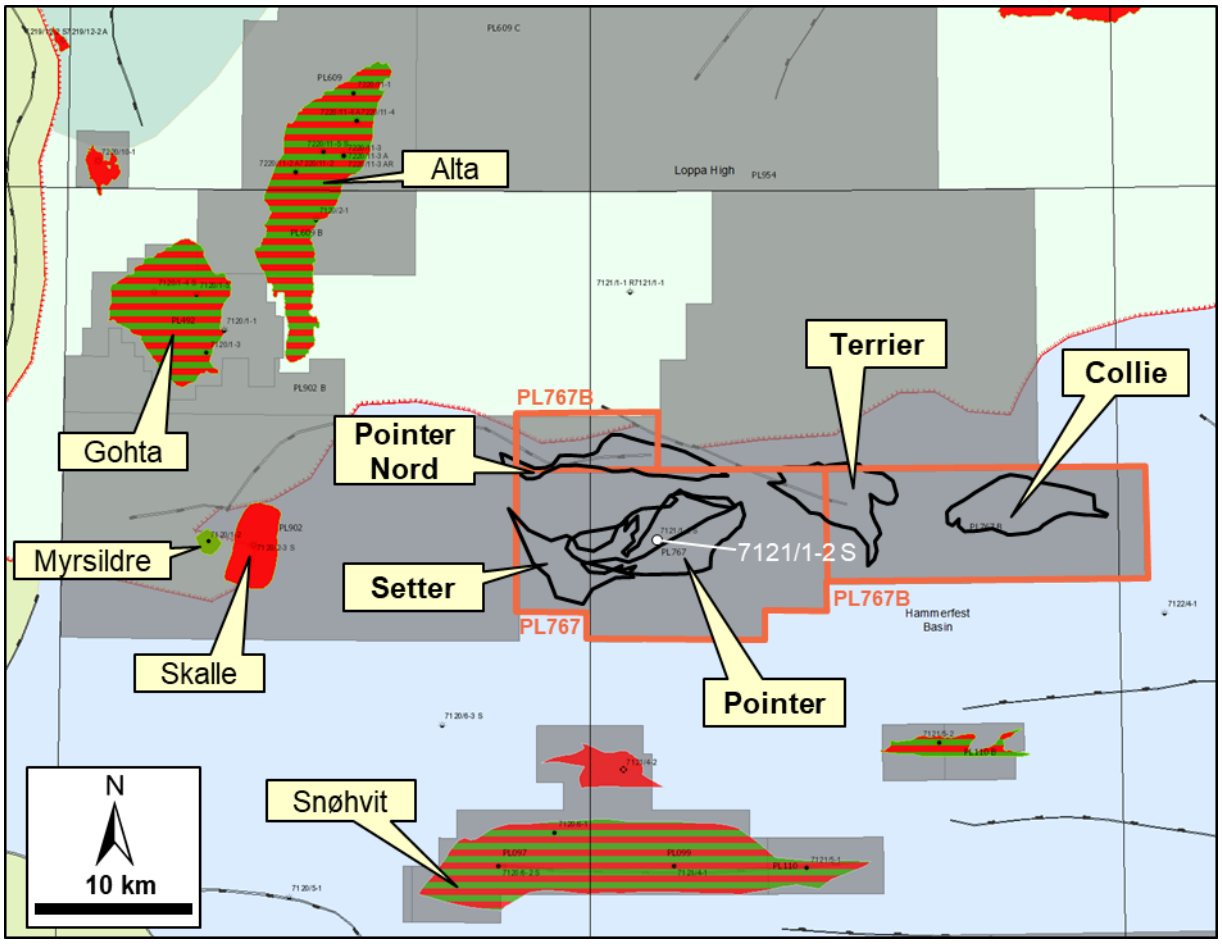

Figure 2. PL767 and PL767 B prospectivity portfolio. Setter, Pointer, Pointer Nord and Collie are Lower Cretaceous prospects, Terrier is a Jurassic prospect. Well 7121/1-2 S tested both the Setter and Pointer prospects.

3. License award

PL767 was awarded as part of TFO 2013 (Fig. 2) on 7th February 2014, with an eight years initial license period to Lundin (60% and operator) and Bayerngas (40%). A one year extension of the initial period was awarded in April 2017. From 1th January 2017 Inpex Norge AS took over Bayerngas share in the license and from 1th January 2018 DNO Norge AS took over 10% of Lundins share in the license. From 1th January 2018 the PL767 partnership was Lundin 50% and operator, Inpex 40% and DNO 10%. The PL767 B was awarded as additional acreage to PL767 on 3th March 2019 (Fig. 2). The partnership spudded the Setter-Pointer well 6th January 2019.

4. Completed work program and special studies

The work commitment in the PL767 license was to reprocess minimum 350 km^2 3D seismic. The 3D survey OMV080 covering PL767 was reprocessed in 2015. A sand provenance and fluid inclusion study on Cretaceous sandstones were performed as special studies. Work program in PL767 B was G&G studies and a drill and drop decision within two years.

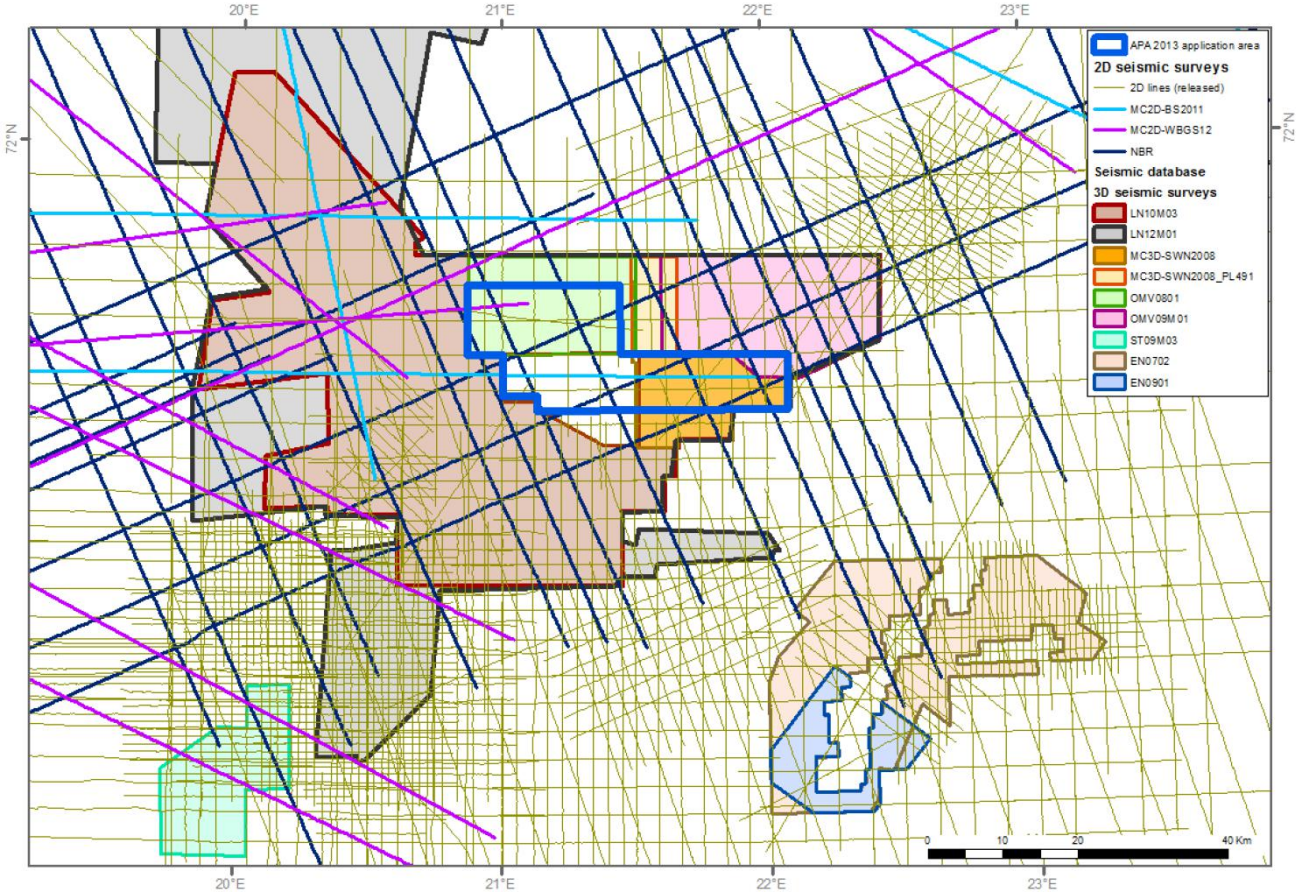

Figure 3. Seismic coverage as outlined in the APA 2013 application. The survey OMV0801 was reprocessed by the license PL767.

5. Pre-drill prospectivity evaluation

The Setter and Pointer prospects were defined as structural-stratigraphic traps. Lower Cretaceous Kolmule Fm (Setter) and Knurr Fm sands (Pointer) pinched out towards the south in the Hammerfest Basin (Fig. 4 and 5). Sand provenance was the Loppa High, immediately to the north: Loppa High was exposed and eroded in the early Cretaceous thus acting as a source area for siliciclastic deposits fringing the Loppa High palaeo-island. The island was drowned in mid-Cretaceous time.

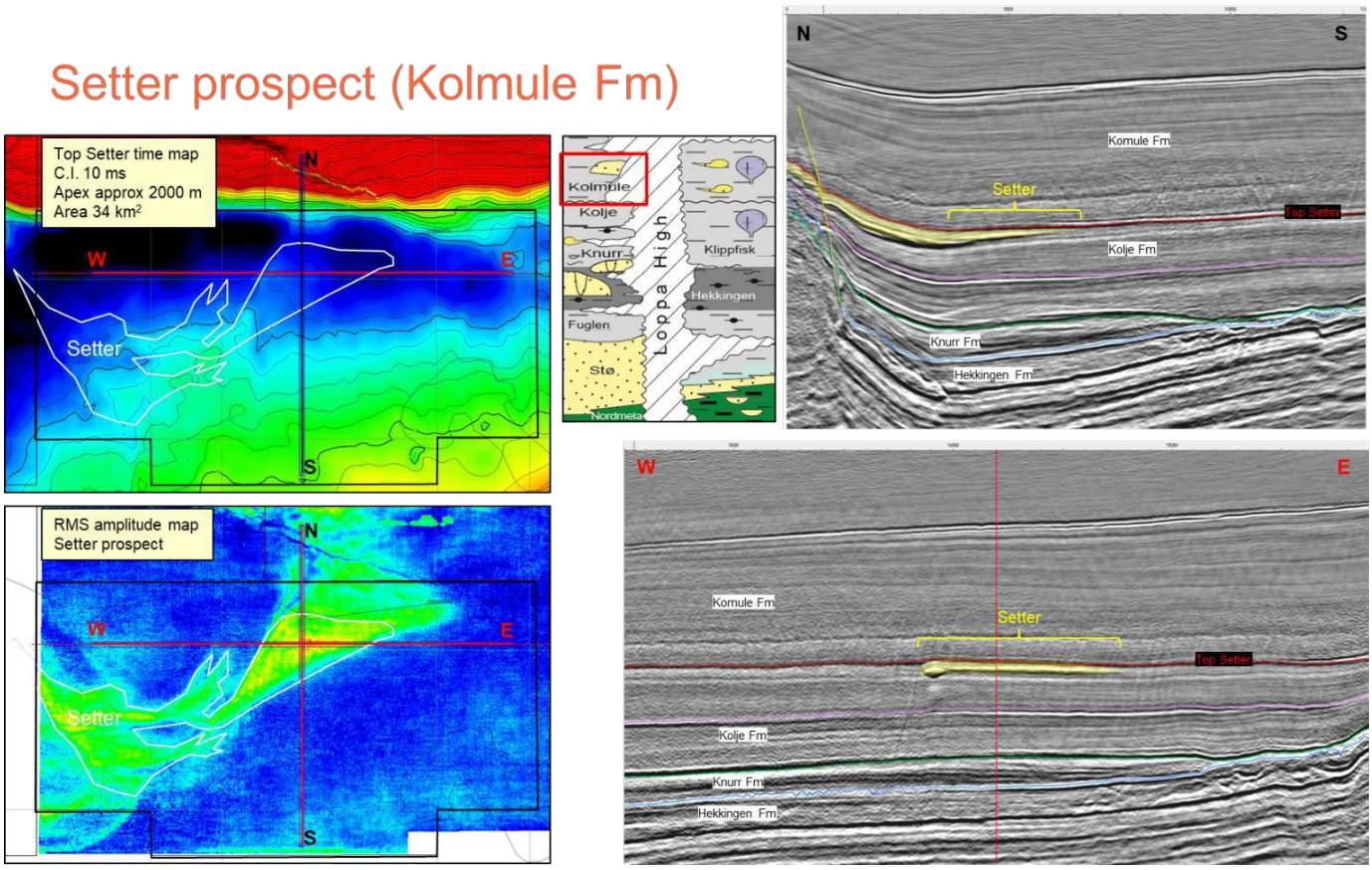

Figure 4. Setter prospect information panel. The prospect is defined as a stratigraphic trap with turbidites/basin floor fan sands deposited in the early Aptian (marked in yellow on seismic sections). RMS amplitudes clearly define a sedimentary system deposited in a W-E direction (green-yellow colour on the RMS amplitude map). A similar system was drilled by well 7120/6-3 S (encountered sandstones with oil shows).

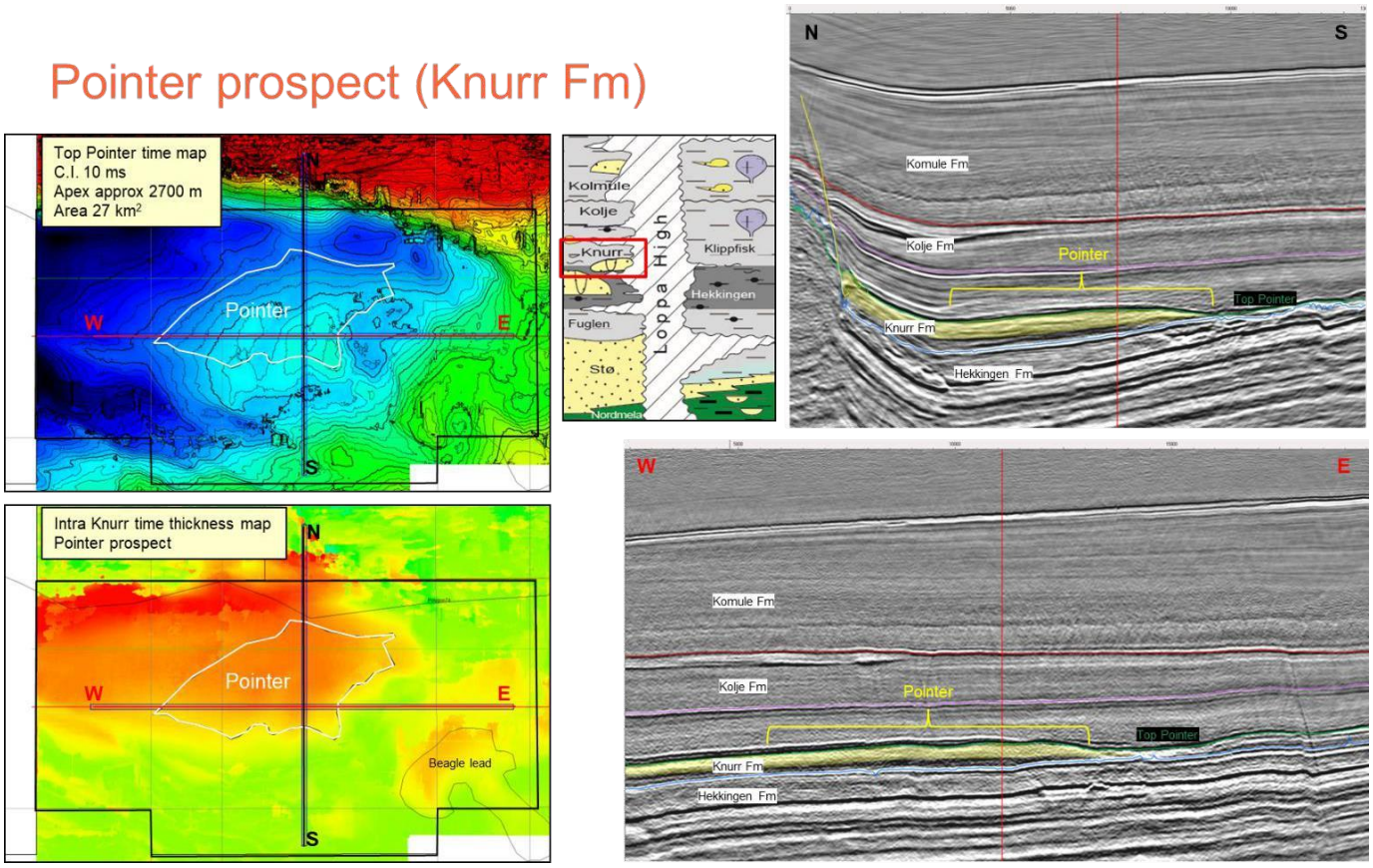

Figure 5. Pointer prospect information panel. The prospect is defined as a stratigraphic trap with submarine delta sands deposited in the Valanginian. A lobe-like feature (marked in yellow on seismic sections, red = thick on the time map) is interpreted as a deltaic system building out southwards from the Loppa High. A small 4-way closure is mapped on the SW part of the prospect. The Beagle lead represents a similar play, but the trap is poorly defined.

Offset wells 7120/2-3 S, 7120/6-3 S and 7220/10-1 proved Lower Kolmule Fm sandstones with good reservoir properties. Knurr Fm reservoir sandstones were drilled by wells 7120/2-2 and 7122/2-1. The areal extent of the prospects was defined based on a combination of observed seismic anomalies and geometries mapped on seismic data.

In PL767 B leads and prospects were defined in Lower Cretaceous (Collie and Pointer Nord prospects, similar play as Pointer) and in Upper Jurassic (Terrier, an injectite play, so far untested in the Barents Sea).

6. Well results

7121/1-2 S (Setter-Pointer)

The well was drilled as a deviated well at the following surface location:

X: 504 364.32 m East	Y: 7 966 176.14 m North	UTM Zone 34 N, Central Meridian 21° East
Lat: 71° 47' 38.40" N	Long: 21° 07' 30.53" E	ED-50
Line intersection: (OMV0801 LNR14)	Crossline 1871	Inline 1884

The well was spudded January 6, 2019, and reached a total depth of 3375 mRKB in Jurassic sandstones. The well was plugged and abandoned on March 2, 2019.

The well encountered reservoir formations in both targets (Kolmule and Knurr fms). Kolmule Fm sandstone were water bearing. Knurr Fm sandstones had occasional oil shows but were tight due to extensive cementation. The well is classified as dry.

Total depth was set approximately 33 m into tight sandstones of the Middle Jurassic Stø Fm.

Results versus prognosis
Top reservoir in the Kolmule Fm, prognosed at 2097 m, came in at 2066.8 m. Top reservoir in the Knurr Fm, prognosed at 2718 m, came in at 2745 m. All depths in mTVD MSL.

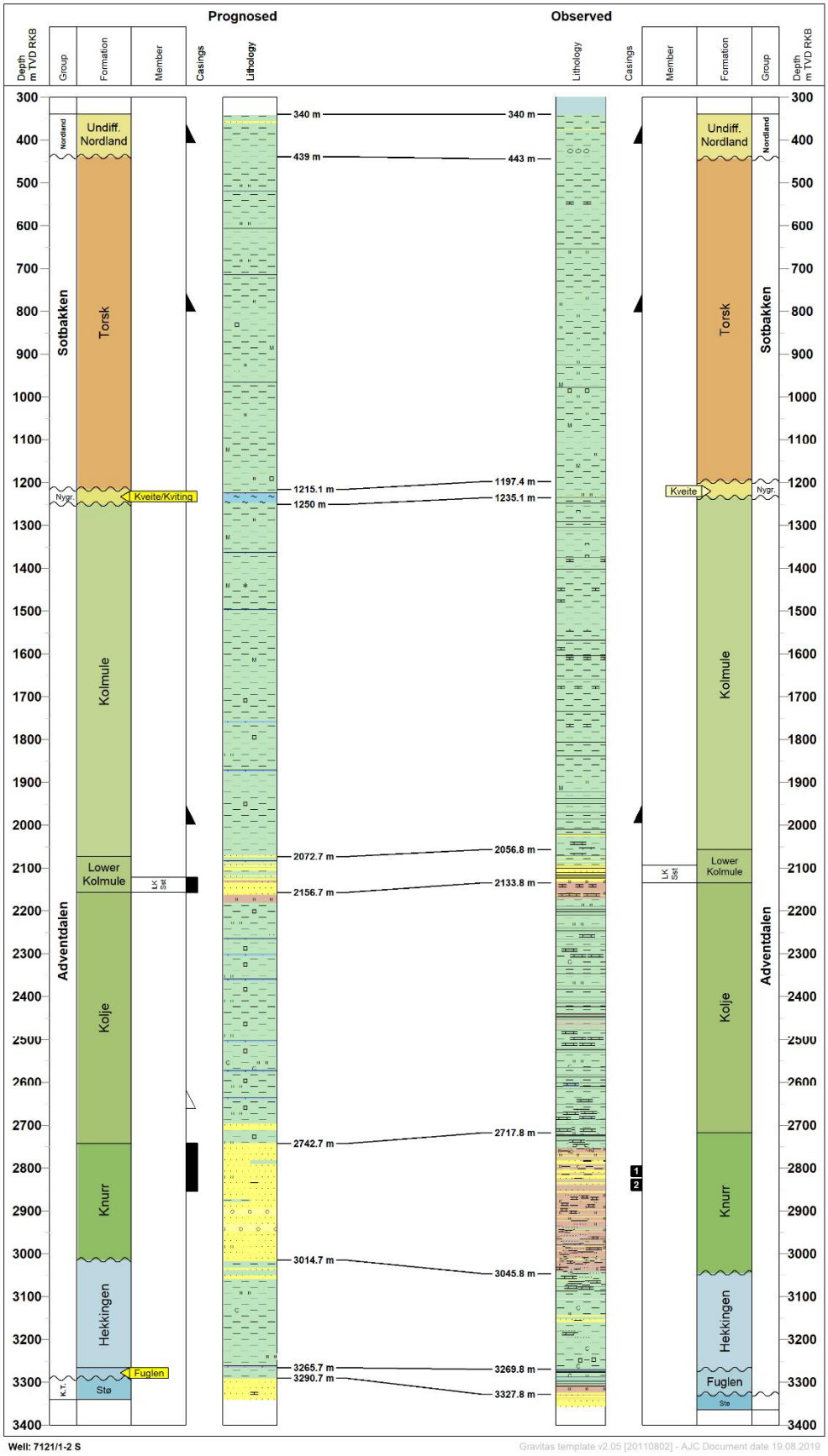

Figure 6. Well 7121/1-2 S, pre and post drilling correlation. Depths in mTVD RKB.

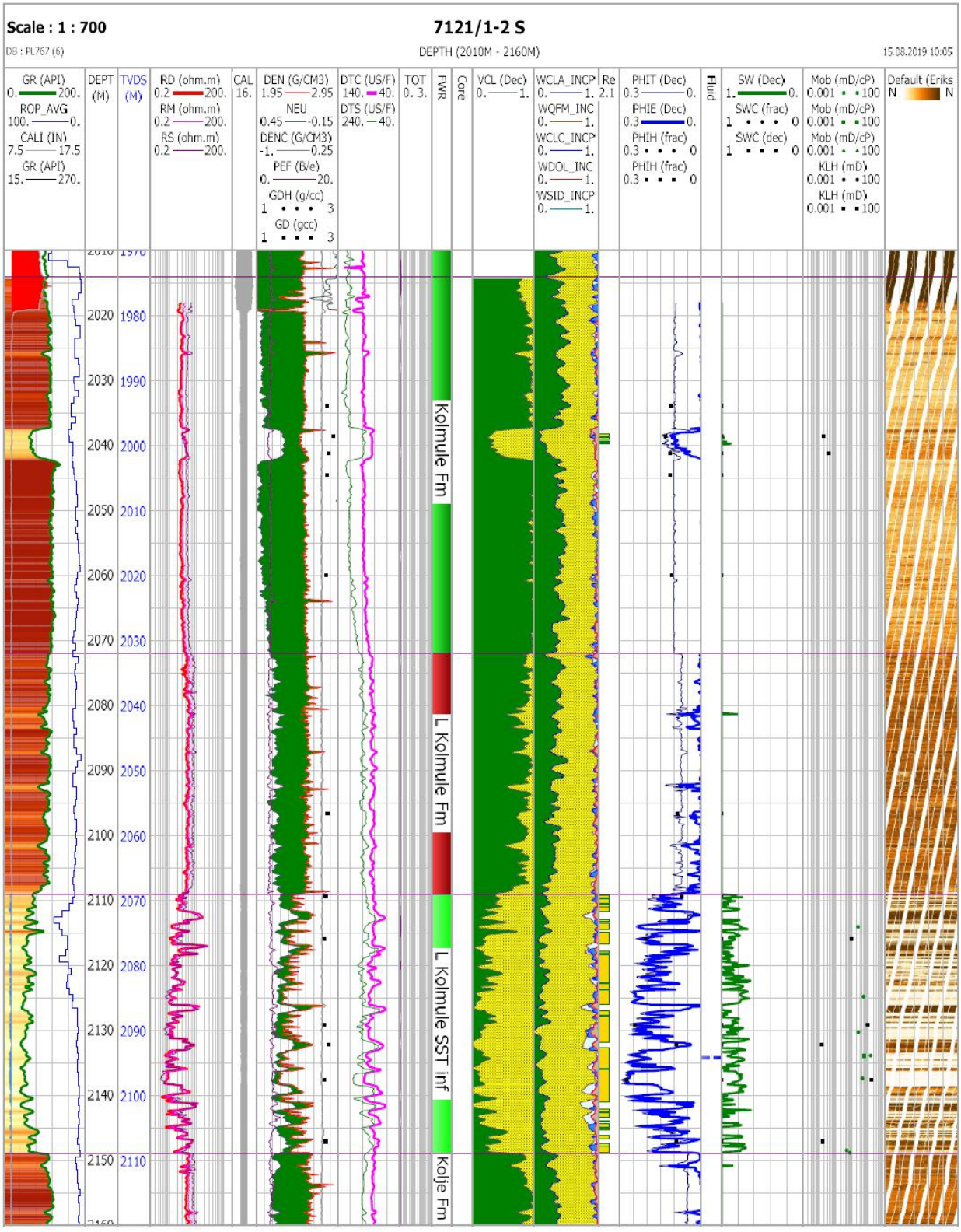

Figure 7. Petrophysical interpretation 7121/1-2 S, Kolmule Fm.

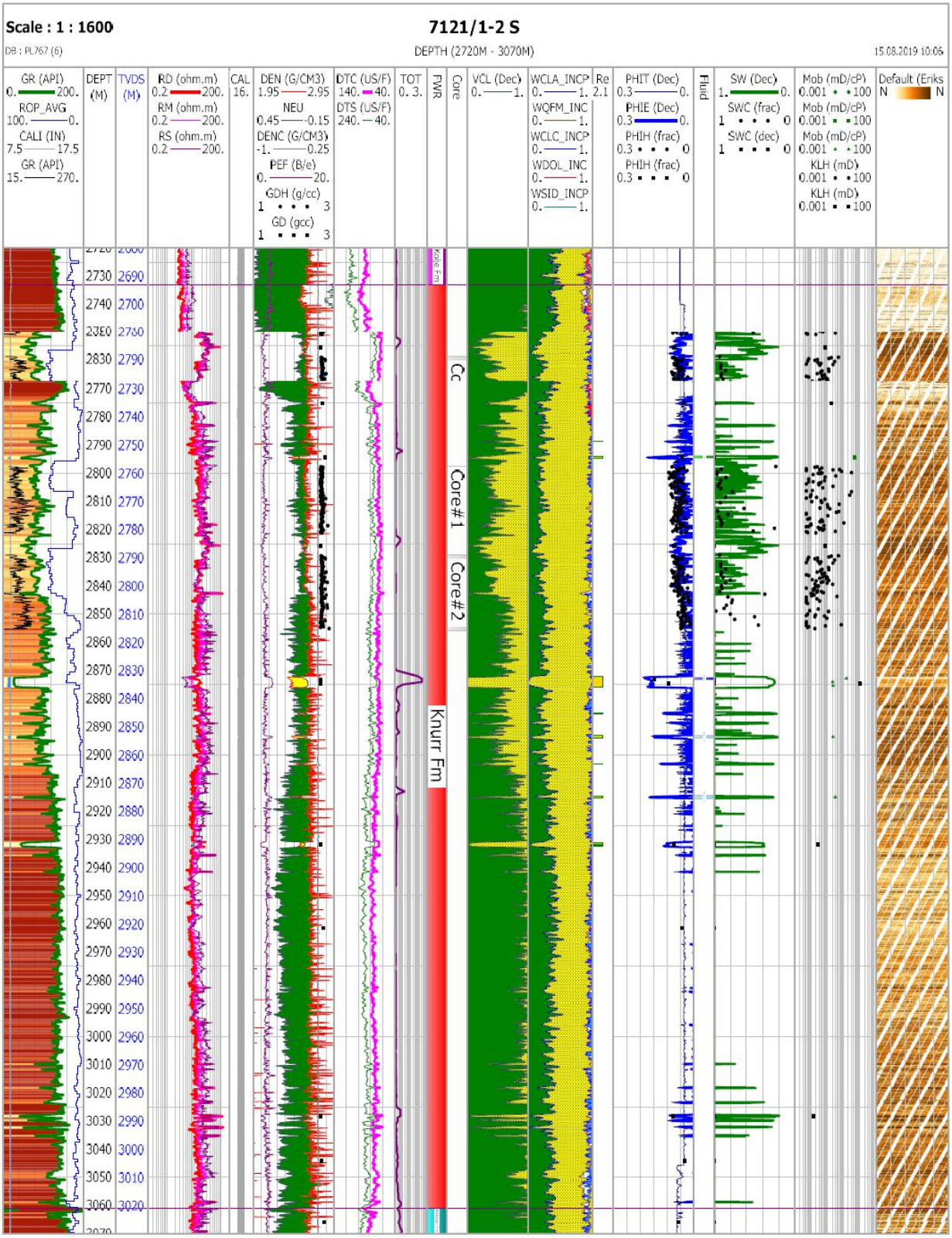

Figure 8. Petrophysical interpretation 7121/1-2 S, Knurr Fm.

7. Remaining prospectivity evaluation

The remaining prospectivity in PL767 and PL767 B is evaluated to be high risk. No traces of oil were observed in the Komule Fm sandstones (Setter prospect). This is believed to reflect lack of vertical migration from mature source rocks in the Upper Hekkingen Fm through tight mudstones in the Lower Cretaceous Kolje Fm. Sandstones in the Knurr, Hekkingen and Stø fms suffer from severe cementation and very little porosity and permeability remains.

Results from well 7121/1-2 S downgrade expected reservoir properties in the Collie and Terrier prospects and increase the risk on the integrity of stratigraphic traps in the area.

There is consequently no viable prospect to take a positive drill decision on within the licence acreage. The remaining prospectivity is considered unattractive and a decision to relinquish the licence has been made by the partnership.