



**PL043FS**  
**Relinquishment report**  
**(Licence status report )**

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# 1 Licence history

**Licence:** PL043FS, block 30/4 (North Sea). 4km north of Martin Linge installation (Figure 1.1).

**Licence acreage:** 17sq.km, stratigraphically restricted from seabed to 50m above Base Cretaceous (Figure 1.1).

**Award:** 17.02.2023 (APA 2022 application)

**Licence period:** 5 years, licence expiration 17.02.2028. BoK 17.02.2025

**Work program:** Drill exploration well by 17.02.2025. Fulfilled with 30/4-4 operation (November–December 2023)

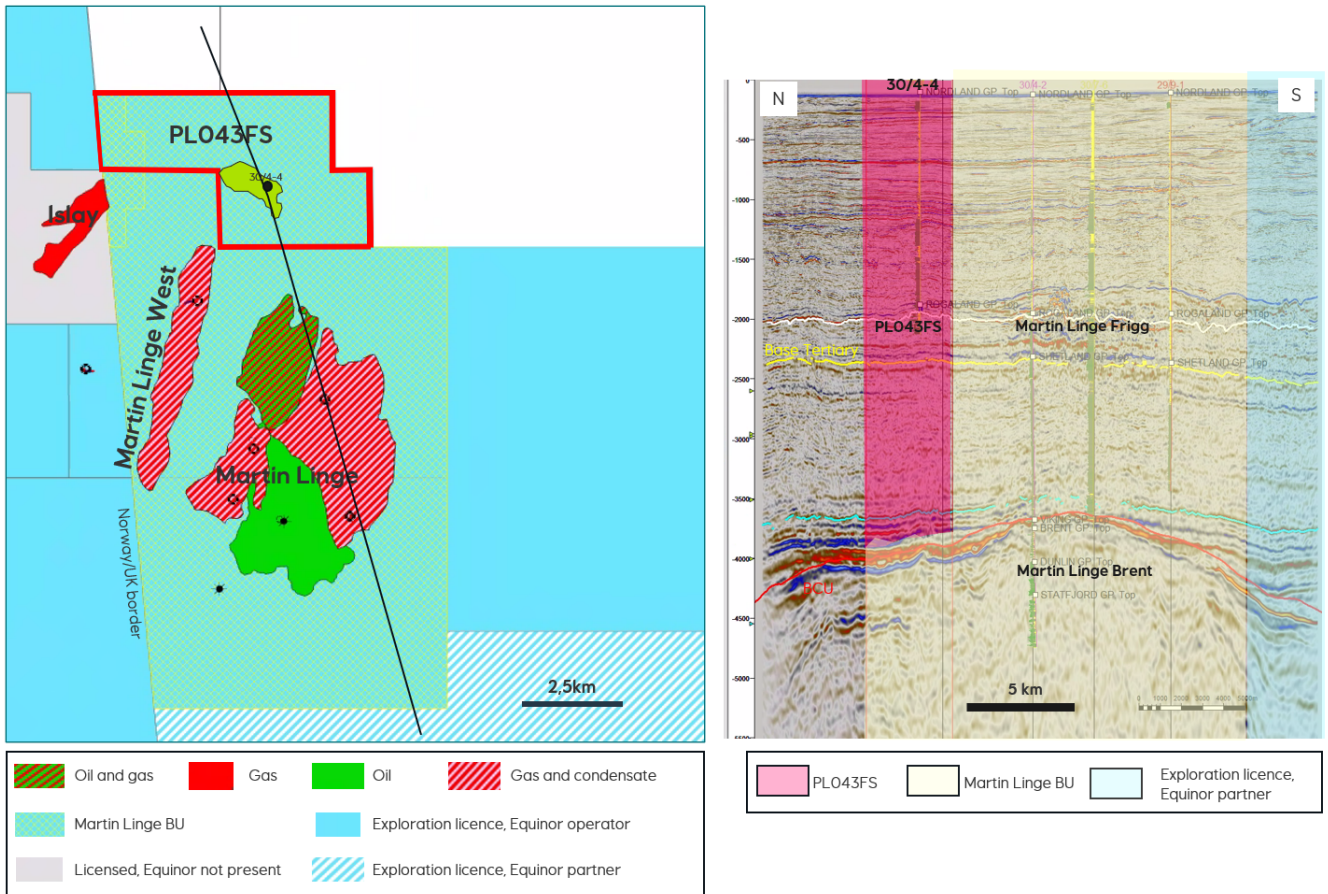


Figure 1.1 PLO43FS position Left : Map illustrating the position of PLO43FS, 4km north of Martin Linge installation

Right : Cross section illustrating the stratigraphic limit of PLO43FS

## Partnership:

Company	Equity	Licence entry date	Licence exit date
Equinor Energy	51% and operator	17 Feb 2023	NA
Sval Energi	19%	17 Feb 2023	NA
Petoro	20%	17 Feb 2023	NA

## Reason for surrender:

PL043FS partners identified the Sara prospect as an attractive target to be drilled and therefore applied for licence award with exploration well commitment. The main objective of the 30/4-4 well (Hermod sandstones) has been proved to be water bearing and non-commercial volumes have been fou in Frigg reservoir. In addition, due to

limited size of the licence (17sq.km) and its stratigraphical limit (50m above BCU and younger), no other prospect than Sara has been identified on PLO43FS. Therefore, the licence partnership decided relinquish the licence and not to apply for decision to develop (BoK) after non-commercial results of 30/4-4.

**Meetings held:**

2023

- 13/01/2023 Pre-award meeting - common databases and well planning status
- 16/02/2023 Pre-award meeting - well objectives and location agreement
- 09/03/2023 EC/MC meeting - Licence award and setup
- 01/06/2023 EC work meeting - Well data acquisition
- 20/12/2023 EC/MC meeting - Well preliminary results

2024

- 04/06/2024 EC/MC meeting - post well studies
- 01/11/2024 EC /MC meeting - Final well results and decision to relinquish

## 2 Database overviews

Figure 2.1 is illustrating the wells and extension of seismic data used for prospect maturation and post well evaluation.

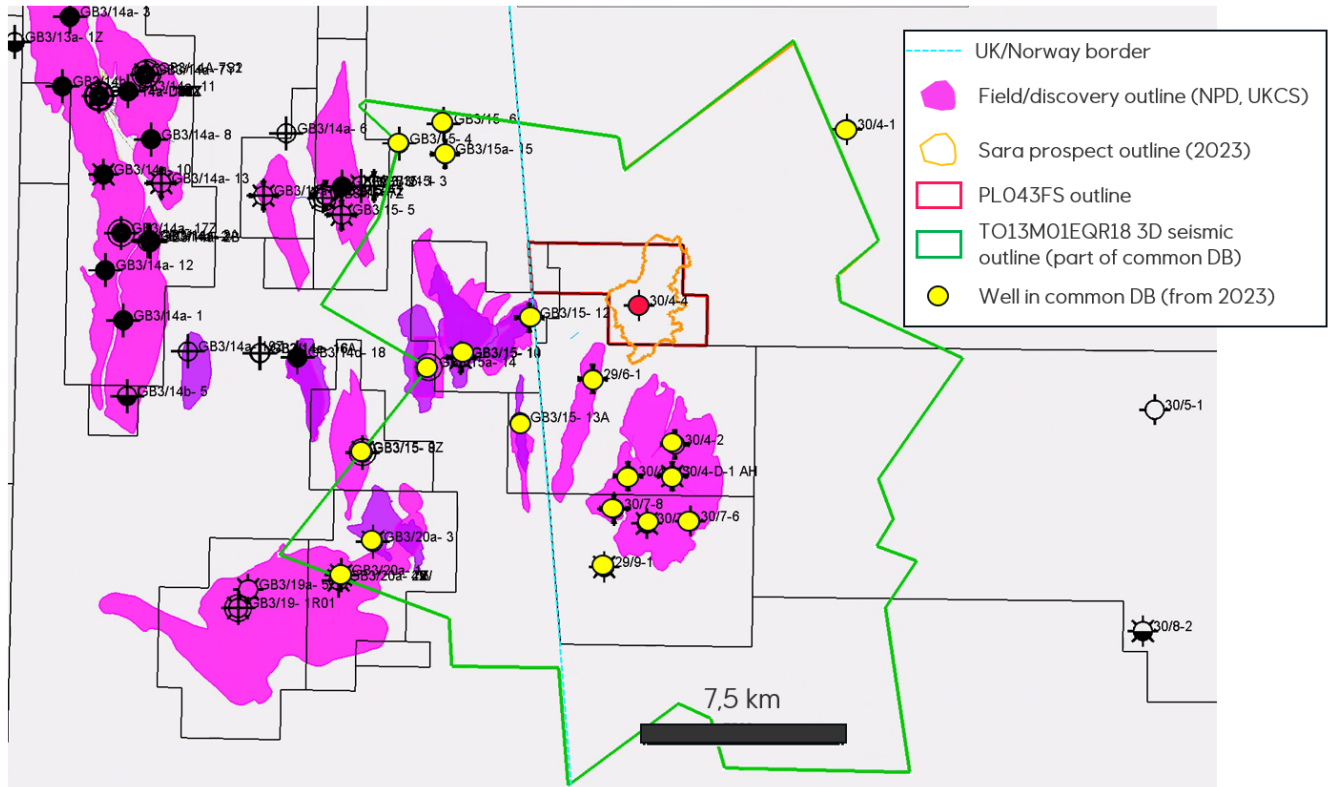


Figure 2.1 PLO43 FS, common well and seismic database

### 2.1 Seismic data

The seismic data used for prospect evaluation, licence application and well planning is TO1301\_ML\_EQR18. It is a reprocessing made in 2018 of streamer data acquired in 3 azimuths in 2012-13 over Martin Linge field and surroundings. The survey entirely covers PLO43FS area (Figure 2.1). In 2024 a reprocessing was conducted over the survey, this dataset has been used for post-well evaluations.

Table 2.1 compiles the seismic data that are part of the license common database.

Table 2.1 PLO43 FS Common seismic database

Survey name	Acq. year	Acq. type	Processing year	Processing type	Owner	Use
TO1201_ML	2012	Streamer. 1 azimuth	2013	Kirchoff PSDM	PL043	Martin Linge
TO1301_ML	2013	Streamer. 2 azimuths	2013	Pre-stack merge of TO12 and TO13, Kirchoff PDSM	PL043	Martin Linge
TO1301_ML_EQR18	2012-13	Streamer, MAZ	2018	Pre-stack merge of TO12 and TO13, Kirchoff PDSM	PL043	Prospect evaluation / APA application / drill decision
TO1301_ML_EQR24	2012-13	Streamer, MAZ	2024	Pre-stack merge of TO12 and TO13, Kirchoff PDSM, FWI	PL043	Post-well evaluation

## 2.2 Well data

Table 2.2 is listing wells part of the common database and used for prospect maturation and well planning. Some of the Martin Linge producer wells were also used during the licence activity.

Table 2.2 PL043FS common well database

Well name	Drilling year	Operator	Discovery / field name
NO 29/6-1	1982	BP Norge	Hild (Martin Linge west, Brent)
NO 29/9-1	1983	Norsk Hydro	Hild (Martin Linge south, Brent)
NO 30/4-1	1978	BP Norge	Dry
NO 30/4-2	1978	BP Norge	Frigg (Martin Linge Frigg) and Hild (Martin Linge East, Brent)
NO 30/4-D-1 H	2009	Total E&P Norge	Hild (Martin Linge East, Brent)
NO 30/7-2	1976	Norsk Hydro	Frigg (Martin Linge, Frigg)
NO 30/7-6 R	1977	Norsk Hydro	Hild (Martin Linge East, Brent)
NO 30/7-8 R	1980	Norsk Hydro	Hild (Martin Linge Central, Brent)
NO 30/4-4	2023	Equinor	Dry with shows in Frigg Fm
GB 3/15-4	1978	Total E&P UK	Dry
GB 3/15-6	1992	Total E&P UK	Dry
GB 3/19-9A	2002	TotalFinaElf UK	Forvie North
GB 3/15-10	2006	Total E&P UK	Jura West
GB 3/15-11	2007	Total E&P UK	Jura
GB 3/15-12	2008	Total E&P UK	Islay
GB 3/15a-14	2010	Total E&P UK	Oban
GB 3/15a-15	2013	Total E&P UK	Fettercainr
GB 3/15a-145Y	2012	Total E&P UK	Laphroaig
GB 3/20a-1	1988	Total E&P UK	Nuggets
GB 3/20a-3	2006	Total E&P UK	Forvie Central



### 3 Results of geological and geophysical studies

**G&G activity during licence period:** The main activity on PL043FS during the licence period has been dedicated to well planning finalization (30/4-4), drilling operations and post well analysis. Due to the small size of the licence (17sq.km, limited to Tertiary and Cretaceous sediments), Sara prospect (Hermod Fm) was the only identified prospect on the licence. This prospect and interval was the main objective of 30/4-4. The well is classified as dry with shows in the Frigg formation.

**30/4-4 well results:** Figure 3.1 is illustrating the well results on seismic section and map. 114m (gross) of excellent quality sand (32-37% porosity) in the Hermod formation have been found, but proved to be water-bearing (from logs and pressure points). In addition, a couple of sand stringers in the younger Frigg and Balder formations with hydrocarbons indication (from logs) were found. Those are classified as shows. Table 3.1 is summarizing the well results per formation.

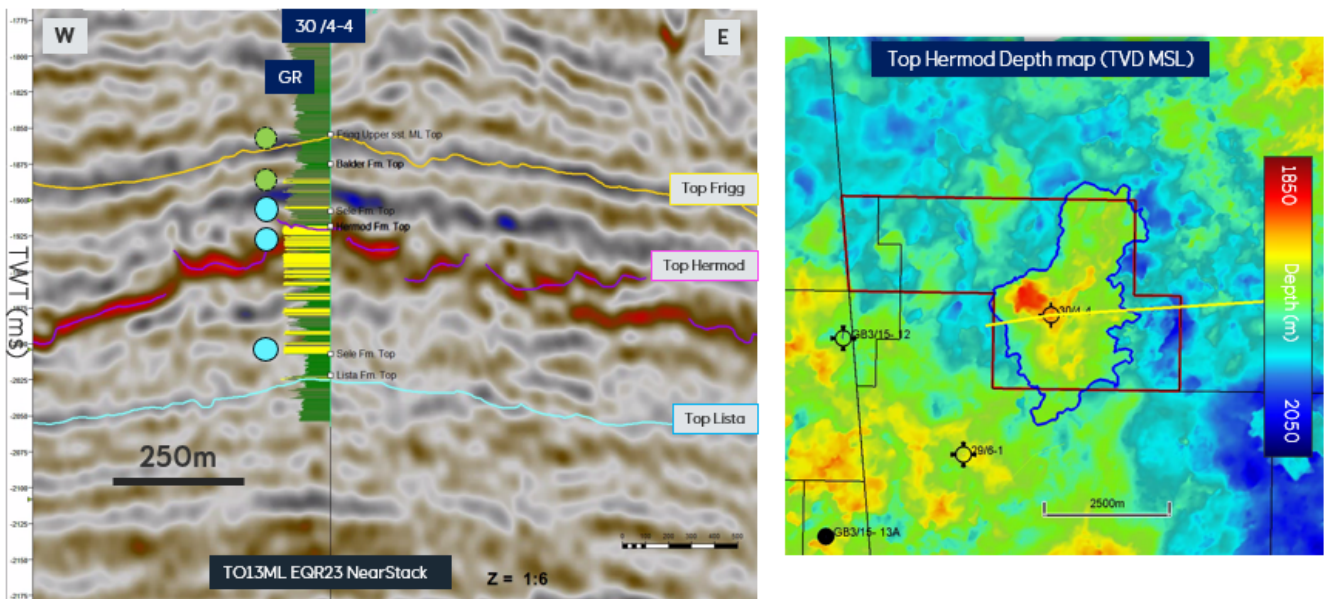


Figure 3.1 30\_4-4 illustration Left : seismic section illustrating 30/4-4 with top Hermod and Top Frigg surfaces Right : Top Hermod depth map illustrating Sara prospect closure with licence outline

Table 3.1 30/4-4 well results per formation

Formation	Gross thickness [m]	Net sand [m]	NTG [Frac]	Av Phi [%]	HCS ?	Net pay [m]
Frigg	23	2	0.09	30	Yes (from logs)	2m
Balder	55	6	0.11	28	Yes (in upper part, from logs)	< 2m
Hermod	114	76	0.67	35	No	0

**Frigg reservoir learnings:** Four metric-thick sandstone layers have been found in Frigg and Balder formations with logs indicating presence of HCs. Acquired data doesn't allow discrimination between oil and gas, neither proves the mobility. As a small 4-way closure is present at top Frigg, volume estimation has been run for this interval and results are summarized in Table 3.2. This volume is considered as non-commercial.

Table 3.2 30/4-4, Potential HC volume estimates

Formation	Depth [m MSL]	Closure size [sq. km]	Phase	HC In-place P90-P10 [10e6 bbl]	Rec. reserves P90-P10 [10e6 bbl]
Frigg and upper Balder	1870	7.2	Oil	0.2-1.5	NA

**Hermod reservoir learnings:** The Hermod reservoir found in 30/4-4 is believed to be a mix of turbiditic sandstones (at the base of the sand package) with remobilized sands over it (injectites). This interpretation is supported by the excellent properties of the Hermod found in 30/4-4 (porosities above 35% on-trend with analogs in this kind of reservoir : Balder, Grane, Alvheim), the thickness of the reservoir unseen in any other offset well and the shape of the structure on map and seismic.

**Trapping mechanism learnings:** The Hermod reservoir is believed to be water-bearing because the key risk of top seal integrity, mainly due to the nature of its deposition (injectites). Therefore, it created porous vertical links (sand wings typical of injectites) between Hermod and Frigg. Horda Fm (Hordaland Gp.) above Top Frigg is an ultimate top seal making the small closure (7.2 sq.km) the shallowest possible trap for hydrocarbons at this location.

**Petroleum system learnings:** Presence of hydrocarbons in Mid-Eocene sediments proves the vertical migration of HCs from the Upper Jurassic Source rock in the Viking graben towards Tertiary reservoirs through the Cretaceous sediments.

## 4 Prospect update report

No prospect other than Sara has been identified in PL043FS.

A lead in Cretaceous (Lower Jorsalfare/Upper Kyrre Fms) has been identified but In-place volumes are limited (1.1-4.2 SM<sup>3</sup> oe In-place: 2-10m net sand trapped in 3 sq.km closure) and producibility is questionable (low permeability reservoir, <1mD). Parameters

Table 4.1 is compiling the understanding of PL043FS prospectivity at time of relinquishment.

Table 4.1

Status	Name	Formation	Depth	Reservoir	Phase	Net reservoir thickness	Porosity	Permeability	In-place	Rec. reserves
Lead	Michou	Kyrre Fm (Upper Cretaceous)	2600m MSL	Calcareous siltstones	Gas and Condensate	3-13m	12-14%	0,01-1mD	1.1-4.2 MSm <sup>3</sup> oe	0.3-1.5 MSm <sup>3</sup> oe

## 5 Technical evaluation

No full economic valuation for the Frigg discovery has been carried out for PL043FS as the the volumes listed in Table 3.2 are below the minimum economic volume.

## 6 Conclusion

The PLO43FS work program has been completed with the drilling of exploration well 30/4-4. The main objective of the well (Sara prospect: Hermod sandstones) has proved to be water bearing. In addition, no other prospect than Sara has been identified on PLO43FS (limited size and stratigraphy). Therefore, the licence partnership decided to relinquish the licence.