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PL785 S / PL785 SB License Relinquishment Report



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Document no.:	Contract no.:		Project:		
2021-011211			Stord Basin Project		
Classification:		Distribution:			
Restricted		Distribution.			
Expiry date:		Status:			
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Distribution date:	Rev. no.:		Copy no.:		
28.01.2022			1		
Author(s)/Source(s):					
Author(3)/Oddice(3).					
Subjects:					
Relinquishment report P	PL785 S / PL785 SB				
Remarks:					
Valid from:		Updated:			
30.12.2021					
Responsible publisher:		Authority to approve deviations:			



Valid from: 27.09.2021

Rev. no.1

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1 License history

License: PL785 S / PL785 SB

Location: Blocks 26/2 and 31/11

Awarded: 06.02.2015 (TFO 2014) to Total E&P Norge AS and Forties Petroleum Norway AS

Equinor entered the license in 2018.

<u>License period:</u> 06.02.2024 (Initial expiry date: 06.02.2021, 3 extensions)

<u>License group:</u> Equinor Energy AS 50% (Operator)

Total Energies 50%

License area: 621.74 km²

<u>Drill decision:</u> 06.02.2019

Work obligations: Study of geology and geophysics

Acquire 3D seismic

Drill well

Meetings held:

17.03.2015 - MC meeting	17.11.2017 - EC meeting	21.08.2020 - EC meeting
18.06.2015 - MC/EC meeting	04.06.2018 - MC/EC meeting	03.09.2020 - EC meeting
05.05.2015 - EC work meeting	01.11.2018 - Partner workshop	18.09.2020 - EC work meeting
15.09.2015 - EC meeting	17.12.2018 - MC/EC meeting	23.09.2020 - EC work meeting
27.11.2015 - MC/EC meeting	20.03.2019 - EC meeting	12.11.2020 - MC/EC meeting
07.04.2016 - EC work meeting	13.09.2019 - EC work meeting	15.04.2021 - MC/EC meeting
30.06.2016 - MC/EC meeting	17.12.2019 - Partner workshop	29.04.2021 - EC work meeting
22.11.2016 - MC/EC meeting	15.04.2020 - MC/EC meeting	22.09.2021 - EC meeting
27.06.2017 - MC meeting	24.06.2020 - EC meeting	25.11.2021 - EC/MC meeting

All meetings in blue were held before Equinor entered the license.

Work performed:

2018/2019: Seismic interpretation, depth conversion, basin model update, G&G evaluations

of Stovegolvet, G&G QC and technical-economic evaluation

2019: Decision to drill the Stovegolvet 31/11-1 S well

2020: Well planning

2021: Drilled the Stovegolvet 31/11-1 S well, spud date 19.04.2021, completed 28.06.2021

Post-well analyses, evaluations, and reporting

Decision to surrender the license

Summary

The PL785 S / PL785SB license is located in the northern part of the Stord Basin, about 50km south of the Troll field (Figure 1). The license was awarded in February 2015 to Total E&P Norge AS (operator) and Forties Petroleum Norway AS with a requirement of performing relevant geological and geophysical studies in addition to acquire 3D geological data. In April 2018, Equinor Energy AS entered the license by acquiring Forties Petroleum's share (40%). The decision to drill the Stovegolvet prospect was taken 06.02.2019. The Stovegolvet prospect was the main prospect in the license and the well was defined as a potential play opener for the deeper stratigraphy of the Stord Basin. The motivation for



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accessing the unmatured Stord basin and the license was that the Stovegolvet structure is one of the largest and best defined 4-way closure in the basin and it would test several different sources, including an idea of a Triassic source.

The Stovegolvet prospect was a faulted 4-way structural closure (Figure 3), with the Johansen Formation and the Statfjord Group as the primary targets. Secondary target was the Sognefjord Formation. In addition, we would also go through the Krossfjord/Fensfjord Formations and the Brent Group and these were evaluated and added as secondary targets. Top seal for the primary target was represented by the marine shales of the Dunlin Group.

An additional Miocene/Oligocene injectite lead was identified that would be intersected by the well.

The Stovegolvet well result came out negative, confirming no hydrocarbons at any stratigraphic levels. Since the well did not have any signs of hydrocarbons, the license is believed to be of limited interest, and the PL785 S/785 SB partnership recommends relinquishing the license before the BOK deadline (06.02.2022) at 31.12.2021.

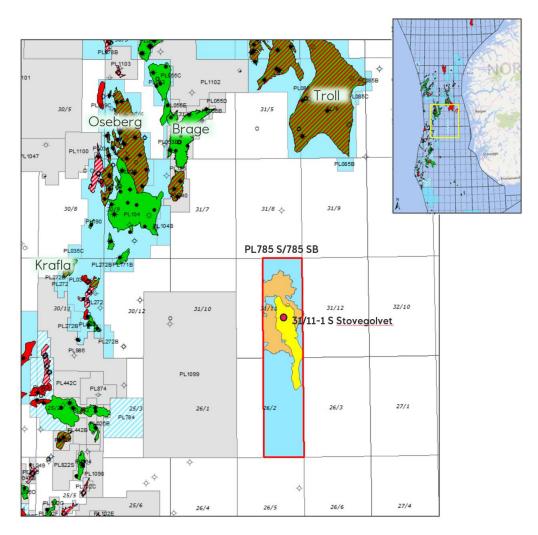


Figure 1 Location of PL785 S and the 31/11-1 S Stovegolvet well. Outline of the Stovegolvet prospects (Johansen fm level) in yellow and the Miocene/Oligocene injectite Lead in orange.



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2 Database overviews

2.1 Geophysical data

Table 1: List of seismic surveys in the common license database (see Figure 2). The CGG18M01 PSTM was used as the main data set for the last seismic interpretation for Stovegolvet.

Seismic survey	2D/3D	Year	Quality	NPDID
CGG17M01 PSTM	3D	2017	Good	
CGG18M01 PSTM	3D	2018	Good	
NRS03 (2 lines)	2D	2003	Moderate-good	
NRS05 (2 lines)	2D	2005	Moderate-good	
NRS06 (9 lines)	2D	20006	Moderate-good	
NRS07 (3lines)	2D	2007	Moderate-good	
NRS08 (1 line)	2D	2008	Moderate-good	

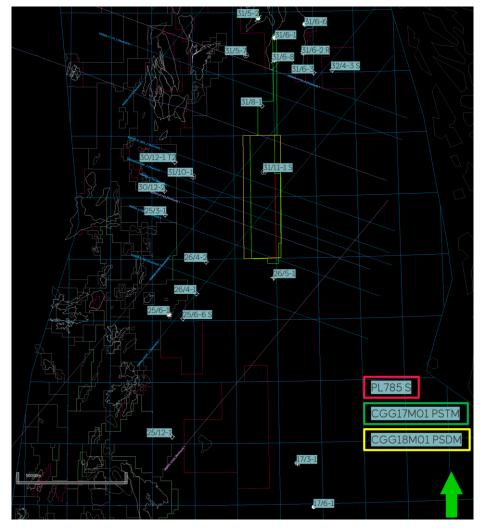


Figure 2 Common database with key wells, 2D seismic lines and extent of the 3D surveys. The decision to enter the license was made utilizing the CGG17M01 PSTM data and later work and depth conversion has utilized the newer CGG18M01 PSDM data.

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2.2 Well data

See Appendix 1 for full list of wells in common database.

3 Results of geological and geophysical studies

The main prospect in PL785 S was the Stovegolvet prospect with primary target in the Johansen Formation. G&G work in the license period thus focused on maturing Stovegolvet as a drilling candidate.

The following G&G studies have been performed in PL785S:

- · Seismic interpretation and avo analysis
- Depth conversion study
- PSA work
- Geological evaluation and prospect evaluation

The seismic interpretation was mainly conducted on CGG17M01 prior to entering the license. After entering the license Equinor purchased the CGG18M01 dataset. Using the CGG18M01 PSDM velocities for depth conversion resulted in the apex of the main reservoir shifting over 6km southwards. To better understand these differences and to ensure an optimal well position, a depth conversion analysis was conducted. The analysis discovered that the CGG18M01 PSDM velocities were not geological where the Sognefjord Fm pinches out and that the previous, QCed DC model used too low velocities, causing up to ~100m difference in depth. Several scenario velocity models were created with the base case as a hybrid model. It uses CGG18M01 PSDM velocities down to BCU and well trends from BCU to Top Sognefjord and from Top Sognefjord and downwards. This results in a gentler top reservoir surface. The difference in imaging between the CGG17M01 and CGG18M01 was minor so there was no need to reinterpret.

Fair to good source rock potential has been identified in several of the shales in the area, and Draupne shales (Type II kerogen) and intra Statfjord shales (type III kerogen) are considered as the main source rocks for the Stovegolvet prospect. In addition, an idea of a Triassic source was considered an upside potential for the prospect.

The existing Stord Basin petroleum system basin model was revisited, and in addition, a new basin modelling study was performed, including the southern part of the Stord Basin. All available temperature and vitrinite data were examined in the calibration of the model. The main uncertainty of the model is the level of maturity reached by the potential source rocks, and different methodology for maturity calibration give a large spread in estimated maturity. This is also the factor which dictates the generated volume outcome. The conventional Draupne and Statfjord sources seems to be early mature in the Stord basin, and an underfilling of the structures were expected. The Stovegolvet prospect was considered located in a favourable position for testing a Statfjord source, however, the prospect was not considered located in a favourable position for testing the Draupne source.

The following G&G studies have been performed in PL785 SB:

- Seismic interpretation and RGB analysis
- · Geological evaluation

Several overburden horizons have been interpreted, and geological evaluation has been performed.



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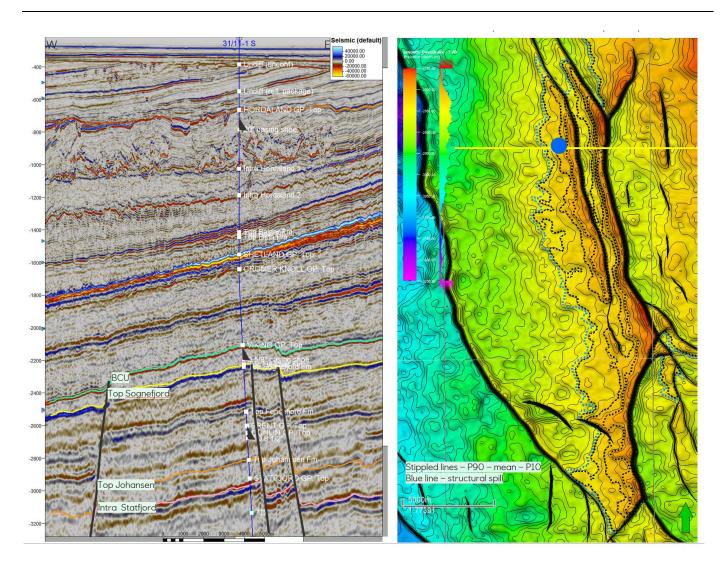


Figure 3 Seismic section going through the 31/11-1 S well (left) and Top Johansen Fm depth map (right) with the well position of the Stovegolvet 31/11-1 S well.

4 Prospect update report

The Stovegolvet prospect was considered a good opportunity to test one of the largest structures in the underexplored Stord Basin. Further, it would test several different sources and reservoirs with one well.

The primary target was the Johansen Formation, and the segment was evaluated as a combined case with contributions from a conventional Statfjord Gp source rock and an unconventional Triassic source, weighting the Statfjord Gp source rock 75% and the Triassic source 25%.

The prospects primary target, the Johansen Formation, had a geological risk Pg of 20%. The main risk was related to the trap in addition to source migration and maturity.

- Play risk source 0.5 (source not proven in Stord Basin)
- Prospect risks source 0.8 and migration 0.8
- Trap seal 0.7



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The primary target, Statfjord Group, had a geological risk Pg of 13%. It was run as a multiple scenario case in GeoX and the main risk was related to the trap and source.

In addition, secondary targets were identified in the Sognefjord Formation as well as in the Fensfjord / Krossfjord Formations and Brent Gp. Pre-well resources for all reservoir levels are presented in Table 3 and pre-well risks in Table 4.

The Stovegolvet 31/11-1 S well was drilled in June 2021 and encountered the Sognefjord Formation followed by the Fensfjord Formation, Cook Formation, Johansen Formation as well as the Statjord Group. Post well analysis indicates that the lower portion of the Statfjord Group may in fact be the upper part of the Hegre Group. The well was dry at all stratigraphic levels and with no shows.

The Sognefjord Formation thickness was 276m with 77m net reservoir of good quality. The Fensfjord Formation thickness was 130m with 53m net reservoir of moderate quality, as prognosed based on the geological model. The Cook Formation thickness was 8m thick with 6m net reservoir of good quality. The Johansen Formation thickness was 64m with a net of 46m reservoir of moderate quality. For the Statfjord Group moderate reservoir quality was encountered.

Pressure data indicated that the Sognefjord Formation and the Krossfjord/Fensfjord formations were depleted by 30 and 15bar respectively. The Cook/Johansen formations and the Statfjord Gp showed hydrostatic pressure.

Regarding the overburden (PL785 SB) the 31/11-1 S well tested the Miocene / Oligocene injectite lead in a favorable position. The well encountered injected sands with the thickest sand package at approximately 140m. No shows were encountered in this package. The next potential reservoir level encountered was what has been interpreted as an approximately 54m thick intra Shetland sand. This potential sand package was mapped out using an Equinor internal software called DELI. No structural traps were identified. Together with a petrography study the interpretation is that there is no reservoir potential at this level.

All the remaining prospectivity is shown in Figure 4. A full prospect evaluation of the remaining leads has not been performed.

Given the negative well result where no sources were proven, source and migration are still a very high risk for the other leads in the license. Further, no signs of hydrocarbons were seen in the penetrated shallower levels. Thus, the remaining prospectivity is considered small.

Table 2 Pre-well recoverable resources for Stovegolvet segments.

			Unrisked recoverable resources						Doob ability of December in		Reservoir		
Prospect/ Lead	P/L	Phase	Oil (106 Sm3)			Gas (109 Sm3)			Probability of Resource in discovery (%) license (%)			Reservoir depth	
			P90	Mean	P10	P90	Mean	P10	alscovery (%)	license (%)	Stratigrapic level	(m MSL)	
Stovegolvet Johansen	Р	Gas	1.1	1.6	2.1	4.5	12.4	26.8	20	100	Johansen Fm		
Stovegolvet Sognefjord	Р	Oil	0.3	0.9	1.6	0	0.1	0.2	23	100	Sognefjord Fm		
Stovegolvet Statfjord	Р	Gas	0.3	1.7	3.7	2.7	9.6	22.6	10	100	Statfjord Gp		
Stovegolvet Krossfjord/Fensfjord	Р	Oil	0.2	0.5	1	0	0.1	0.1	4	100	Krossfjord/Fensfjord Fms		
Stovegolvet Brent	Р	Gas	0.1	0.4	1	0.5	2.4	5	7	100	Brent Gp		

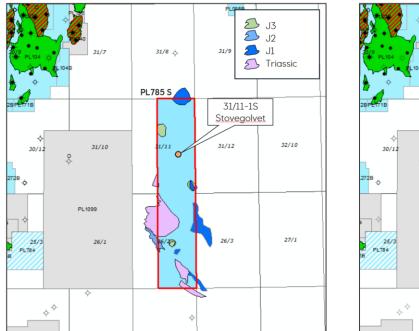
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Table 3 Pre-well risk for all Stovegolvet segments.

	P-Play			P - prospect / Segment							Discourant	
Prospect segments			Cool	Res	serv.		Source		Tr	ар	Discovery	
	Reservoir	Source	Seal	presence	producibility	presence	migration	hc-phase	geomety	seal	Pg (%)	Pg(dhi)
Stovegolvet Johansen	1	0.5	1	0.9	1	0.8	0.8	1	1	0.7	20	
Stovegolvet Sognefjord	1	1	1	0.8	1	0.4	0.75	1	1	0.8	23	
Stovegolvet Statfjord	1	0.5	1	0.85	1	0.8	0.85	1	1	0.35	10	
Stovegolvet Krossfjord/Fensfjord	1	1	1	0.5	1	0.4	0.4	1	1	0.5	4	
Stovegolvet Brent	1	0.5	1	0.45	1	0.8	0.5	1	1	0.5	7	



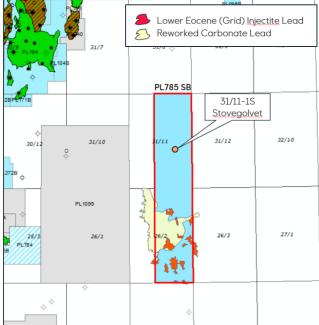


Figure 4 Remaining prospectivity in PL785 S (left) and PL785 SB (right).

5 Technical evaluation

The Stovegolvet prospect was evaluated as a potential subsea tie-back to the Krafla platform, which is located approximately 60 km to the northwest of Stovegolvet. The expected case is based on a tie-in of 4 gas producing wells, where the wells would be drilled from a single subsea template at Stovegolvet and well stream transport would be supplied for tie-in host. Post-well 31/11-1-S, the remaining prospectivity in the license has a very high risk and currently not economical interesting.

6 Conclusion

The work program for PL785 S / PL785 SB has been completed with extensive G&G work and drilling of the Stovegolvet prospect with well 31/11-1 S in June 2021. The negative well result did not reduce the risk of the other leads in the license. The remaining potential is considered not interesting at present, thus, the decision to relinquish the license.



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Appendix 1 List of wellbores in the common license database.

	Well	Year	Operator	License when drilled	Status
	25/11-1		Esso Exploration and Production Norway A/S	PL001	Oil
	25/8-1		Esso Exploration and Production Norway A/S	PL027	Oil
	25/10-2		Esso Exploration and Production Norway A/S	PL028	Oil shows
	25/4-1		Elf Petroleum Norge AS	PL036	Oil/Gas
	25/12-1		A/S Norske Shell	PL010	Dry
	25/11-5		Esso Exploration and Production Norway A/S	PL001	Oil
	25/2-4	_	Elf Petroleum Norge AS	PL026	Gas/Cond.
	25/8-2		Esso Exploration and Production Norway A/S	PL027	Dry
	30/11-1		A/S Norske Shell	PL035	Dry
	2/10-1 S		Phillips Petroleum Company Norway	PL031	Gas shows
	25/2-5		Elf Petroleum Norge AS	PL026	Oil/Gas
	25/2-6		Elf Petroleum Norge AS	PL026	Oil shows
	30/4-1		BP Norway Limited U.A.	PL043	Dry
	30/6-1		Den norske stats oljeselskap a.s	PL053	Gas
	30/6-2		Den norske stats oljeselskap a.s	PL053	Oil/Gas
	31/4-1		Norsk Hydro Produksjon AS	PL055	Dry
	31/4-2		Norsk Hydro Produksjon AS	PL055	Oil
	30/4-2		BP Norway Limited U.A.	PL043	Gas/Cond.
	30/6-3		Den norske stats oljeselskap a.s	PL053	Gas/Cond.
	31/2-2 R		A/S Norske Shell	PL054	Oil/Gas
	31/2-3		A/S Norske Shell	PL054	Oil/Gas
	31/4-3		Norsk Hydro Produksjon AS	PL055	Oil/Gas
	25/4-5		Elf Petroleum Norge AS	PL036	Oil/Gas
	30/3-2 R		Den norske stats oljeselskap a.s	PL052	Oil/Gas
	30/6-4		Den norske stats oljeselskap a.s	PL052	Oil/Gas
	30/6-5		Den norske stats oljeselskap a.s	PL053	Oil
	31/2-1 R		A/S Norske Shell	PL053	Oil/Gas
	31/2-1 K		A/S Norske Shell	PL054	Oil/Gas
	31/2-41		A/S Norske Shell	PL054	Oil/Gas
	31/4-4		Norsk Hydro Produksjon AS		
				PL055	Dry Oil
	31/4-5		Norsk Hydro Produksjon AS	PL055	
	25/2-7		Elf Petroleum Norge AS	PL026	Shows
	30/2-1		Den norske stats oljeselskap a.s	PL051	Gas/Cond. Shows
	30/3-1 R		Den norske stats oljeselskap a.s	PL052	
	30/6-8		Norsk Hydro Produksjon AS	PL053	Dry
	30/7-8 R		Norsk Hydro Produksjon AS	PL040	Gas/Cond.
	31/2-8		A/S Norske Shell	PL054	Oil shows
	31/2-7		A/S Norske Shell	PL054	Oil/Gas
	31/2-9		A/S Norske Shell	PL054	Oil/Gas
	2/6-3		Elf Petroleum Norge AS	PL008	Dry
	30/9-1		Norsk Hydro Produksjon AS	PL079	Oil
	30/9-2		Norsk Hydro Produksjon AS	PL079	Oil/Gas
	30/11-3		A/S Norske Shell	PL035	Oil shows
	31/2-11		A/S Norske Shell	PL054	Oil/Gas
	31/2-12		A/S Norske Shell	PL054	Oil/Gas
	31/3-1		Den norske stats oljeselskap a.s	PL085	Gas
10	31/6-1		Norsk Hydro Produksjon AS	PL085	Oil/Gas
sars	31/6-3		Norsk Hydro Produksjon AS	PL085	Dry
0 V	30/11-4		A/S Norske Shell	PL035	Oil shows
^ 2			A/S Norske Shell	PL054	Oil/Gas
Wells > 20 years	31/2-135		A/S Norske Shell	PL054	Oil/Gas
₹	31/2-14		A/S Norske Shell	PL054	Oil/Gas
	31/4-7		Norsk Hydro Produksjon AS	PL055	Oil/Gas
	31/5-2R	1984	Saga Petroleum ASA	PL085	Oil/Gas

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	31/6-2R	1984	Den norske stats oljeselskap a.s	PL085	Gas	
	31/6-5		Den norske stats oljeselskap a.s	PL085	Oil/Gas	
	31/6-6		Den norske stats oljeselskap a.s	PL085	Gas	
	30/6-18		Norsk Hydro Produksjon AS	PL053	Oil/Gas	
	30/9-58		Norsk Hydro Produksjon AS	PL104	Gas	
	31/6-8 R		Norsk Hydro Produksjon AS	PL085	Oil/Gas	
	25/6-1		Saga Petroleum ASA	PL117	Oil	
	31/4-8		Norsk Hydro Produksjon AS	PL055	Oil/Gas	
	25/5-1					
			Elf Petroleum Norge AS	PL102	Oil/Gas	
	26/4-1		BP Norway Limited U.A.	PL118	Dry	
	31/4-9		Norsk Hydro Produksjon AS	PL055	Oil	
	25/2-12		Elf Petroleum Norge AS	PL026	Gas/Cond.	
	30/6-22		Norsk Hydro Produksjon AS	PL053	Oil	
	25/3-1	1989	Elf Petroleum Norge AS	PL151	Dry	
	25/5-2	1989	Elf Petroleum Norge AS	PL102	Oil	
	30/9-8	1989	Norsk Hydro Produksjon AS	PL104	Dry	
	30/9-8R	1989	Norsk Hydro Produksjon AS	PL104	Oil	
	30/9-9		Norsk Hydro Produksjon AS	PL104	Oil	
	2/7-22		BP Petroleum Dev. of Norway AS	PL145	Gas/Cond.	
	25/2-13		Elf Petroleum Norge AS	PL026	Oil/Gas	
	25/5-3		Elf Petroleum Norge AS	PL102	Gas/Cond.	
	30/9-10		Norsk Hydro Produksjon AS	PL104	Oil	
	2/7-26 S		Phillips Petroleum Company Norway	PL104 PL018	Oil	
	_				Oil	
	2/7-23 S		Phillips Petroleum Company Norway	PL018		
	25/5-4		Elf Petroleum Norge AS	PL102	Gas/Cond.	
	35/11-5		Mobil Exploration Norway INC	PL090	Oil/Gas	
	25/6-2	1992	Saga Petroleum ASA	PL117	Dry	
	35/11-6	1992	Mobil Exploration Norway INC	PL090	Oil shows	
	2/11-9	1993	Amoco Norway Oil Company	PL033	Shows	
	25/2-15 R	1993	Elf Petroleum Norge AS	PL026	Oil shows	
	30/9-14	1993	Norsk Hydro Produksjon AS	PL104	Oil/Gas	
	30/6-22R	1994	Norsk Hydro Produksjon AS	PL053	Oil	
	30/9-16	1994	Norsk Hydro Produksjon AS	PL104	Oil/Gas	
	30/12-1	1994	Norsk Hydro Produksjon AS	PL171	Dry	
	17/3-1		Elf Petroleum Norge AS	PL188	Gas	
	25/8-7		Amerada Hess Norge AS	PL189	Oil shows	
	25/9-1		Amerada Hess Norge AS	PL189	Dry	
	25/11-20		Norsk Hydro Produksjon AS	PL169	Dry	
	30/8-2		Norsk Hydro Produksjon AS	PL190	Oil shows	
	31/2-195		Norsk Hydro Produksjon AS	PL191	Dry	
	32/4-1		Phillips Petroleum Company Norway	PL205	Dry	
	36/4-1		BP Norway Limited U.A.	PL196	Dry	
	25/8-9		Amerada Hess Norge AS	PL189	Oil	
	_		Norsk Hydro Produksjon AS	PL090	Oil/Gas	
	25/11-22	1998	Norsk Hydro Produksjon AS	PL169	Dry	
	31/5-6	2000	Norsk Hydro Produksjon AS	PL191	Oil shows	
	25/4-6 SR	2003	Norsk Hydro Produksjon AS	PL036	Gas/Cond.	Early Jurassic
	25/9-2 S	2003	Esso Exploration and Production Norway A/S	PL189	Dry	Early Jurassic
	26/4-2	2004	A/S Norske Shell	PL266	Dry	Late Cretaceous
ar's	31/1-1		Marathon Petroleum Norge AS	PL311	Dry	Early Jurassic
Wells > 2 years	32/2-1	_	Talisman Energy Norge AS	PL369	Dry	Triassic
	25/9-3	+	Norwegian Energy Company ASA	PL412	Dry	Early Jurassic
<u> </u>	30/9-23		StatoilHydro Petroleum AS	PL104	Dry	Early Jurassic
>	17/6-1		Norwegian Energy Company ASA	PL545	Oil shows	Late Triassic
1						
	31/8-1		E.ON Ruhrgas Norge AS Rocksource Exploration Norway AS	PL416 PL506S	Dry Dry	Middle Jurassic
	26/5 4					Late Cretaceous
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