



General information





Wellbore name	2/7-14
Type	EXPLORATION
Purpose	APPRAISAL
Status	SUSPENDED
Factmaps in new window	link to map
Main area	NORTH SEA
Field	EKOFSK
Discovery	2/4-2 Ekofisk
Well name	2/7-14
Seismic location	PS 562915 SP.116
Production licence	018
Drilling operator	Phillips Petroleum Company Norway
Drill permit	221-L
Drilling facility	HAAKON MAGNUS
Drilling days	165
Entered date	09.08.1979
Completed date	20.01.1980
Release date	20.01.1982
Publication date	02.04.2007
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL
Discovery wellbore	NO
1st level with HC, age	PALEOCENE
1st level with HC, formation	EKOFSK FM
2nd level with HC, age	LATE CRETACEOUS
2nd level with HC, formation	TOR FM
Kelly bushing elevation [m]	25.0
Water depth [m]	71.0
Total depth (MD) [m RKB]	3390.0
Bottom hole temperature [°C]	124
Oldest penetrated age	LATE CRETACEOUS
Oldest penetrated formation	TOR FM
Geodetic datum	ED50
NS degrees	56° 29' 20.3" N
EW degrees	3° 14' 2.65" E
NS UTM [m]	6260666.80
EW UTM [m]	514414.24
UTM zone	31
NPDID wellbore	116



Wellbore history

General

Well 2/7-14 was drilled to delineate the southern limits of the Ekofisk Field in the southern Norwegian North Sea. The primary target was the Danian limestone. It was anticipated that the proposed location would have a similar structural position as development well 2/4-A-3 and a comparable amount of Danian net pay. The secondary target was the Late Cretaceous limestone, which was untested on the southern nose of the Ekofisk Field.

Operations and results

Appraisal well 2/7-14 was spudded with the semi-submersible installation Haakon Magnus on 9 August 1979 and drilled to TD at 3390 m in Late Cretaceous limestone. The well was drilled with Bentonite/Flosal spud mud to 20" casing point at 609 m, with Seawater/Native solids mud from 609 m to 13 3/8" casing point at 1526 m, with Drispac/Lignosulphonate dispersed, inhibitive mud from 1526 m to 9 5/8" casing point at 3068 m, and with Bentonite/Lignite/Drispac low fluid loss mud from 3068 m to TD.

Top Paleocene was encountered at 3045 m. Top of the Danian Limestone was penetrated at 3146 m, 15 m low to prognosis, with 52 m of Danian net pay, compared to 86 m Danian net pay in well 2/4-A-3. The Danian reservoir pressures were found to be less than virgin Ekofisk pressures, evidence that the interval had been drained by the nearby well 2/4-A-3. The Late Cretaceous was encountered at 3257 m, 13 m low to prognosis. The section flowed oil with a large volume of associated water in DST 2.

A total of 119 m core was recovered in 13 cores from the Paleocene and Late Cretaceous in the interval 3123 - 3306 m. No fluid sample was taken on wire line.

The well was suspended on 20 January 1980 as an oil appraisal.

Testing

Five drill stem tests were made through perforations in the 7" liner.

DST 1 at 3346.7 - 3349.8 m in the Late Cretaceous Limestone recovered 12 m³ water cushion plus 21 m³ formation fluid (85% water, 15% oil and water emulsion).

DST 2 at 3261.4 - 3279.7 m in the Late Cretaceous Limestone produced in the final flow 227 Sm³ oil and 31430 Sm³ gas and 1445 m³ water /day on a 25.4 mm choke. The GOR was 139 Sm³/Sm³, the oil gravity was 30.4 deg API, and the gas gravity was 0.82.

DST 3 at 3225.7 - 3235.2 m in the lower Danian Limestone produced in the final flow 586516 Sm³ gas and 401 Sm³ water /day on a 20.6 mm choke.

DST 4 at 3189.5 - 3211.4 m in the middle Danian Limestone produced in the final flow 553 Sm³ oil and 86366 Sm³ gas with less than 1% water /day on a 15.1 mm choke. The GOR was reported to be 239 Sm³/Sm³, the oil gravity was 34.6 deg API, and the gas gravity was 0.682.

DST 5 at 3150.5 - 3168.7 m in the upper Danian Limestone produced in the final flow 76 Sm³ oil and 14368 Sm³ gas with 5% sediment and water /day on a 7.9 mm choke. The GOR was 190 Sm³/Sm³, the oil gravity was 32.9 deg API, and the gas gravity was 0.697.

**Cuttings at the Norwegian Offshore Directorate**

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
375.00	3386.00

Cuttings available for sampling?	YES
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Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	10240.0	10290.0	[ft]
2	10299.0	10342.0	[ft]
3	10358.0	10367.9	[ft]
4	10377.0	10400.0	[ft]
5	10400.0	10445.6	[ft]
6	10451.0	10455.0	[ft]
7	10476.0	10514.6	[ft]
8	10533.0	10557.0	[ft]
9	10600.0	10627.0	[ft]
10	10630.0	10654.8	[ft]
11	10745.9	10783.0	[ft]
12	10798.0	10817.0	[ft]
13	10819.0	10845.7	[ft]

Total core sample length [m]	113.6
Cores available for sampling?	YES

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
10601.7	[ft]	C	OD
10604.6	[ft]	C	OD
10607.3	[ft]	C	OD
10607.7	[ft]	C	OD
10610.4	[ft]	C	OD
10612.3	[ft]	C	OD
10613.4	[ft]	C	OD
10614.4	[ft]	C	OD
10615.3	[ft]	C	OD



10617.6	[ft]	C	OD
10619.1	[ft]	C	OD
10622.2	[ft]	C	OD
10625.3	[ft]	C	OD
10631.1	[ft]	C	OD
10633.6	[ft]	C	OD
10636.2	[ft]	C	OD
10638.7	[ft]	C	OD
10644.3	[ft]	C	OD
10646.6	[ft]	C	OD
10649.7	[ft]	C	OD
10652.5	[ft]	C	OD
10652.6	[ft]	C	OD
10656.2	[ft]	C	OD
10658.7	[ft]	C	OD

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
96	NORDLAND GP
1783	HORDALAND GP
3002	ROGALAND GP
3002	BALDER FM
3018	SELE FM
3033	LISTA FM
3134	VÅLE FM
3146	SHETLAND GP
3146	EKOFISK FM
3257	TOR FM

Documents - older Norwegian Offshore Directorate WDSS reports and other related documents

Document name	Document format	Document size [MB]
116_01_WDSS_General_Information	pdf	0.13
116_02_WDSS_completion_log	pdf	0.21

Documents - reported by the production licence (period for duty of secrecy expired)





Document name	Document format	Document size [MB]
116_01_2_7_14_Completion_log	pdf	2.28
116_01_2_7_14_Completion_Report	pdf	11.81
116_04_2_7_14_Core_analysis	pdf	15.17

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	3321	3324	25.4
2.0	3236	3254	0.0
3.0	3200	3210	0.0
4.0	3164	3186	0.0
5.0	3125	3143	0.0

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0				
2.0		14.000		
3.0				
4.0				
5.0				

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0					
2.0	227	31000	0.874	0.820	139
3.0		59000			
4.0	553	86000	0.852	0.682	239
5.0	76	14000	0.861	0.697	190

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL	92	3356
CBL GR	2896	3356
CBL VDL	3067	3354





CDM	3074	3383
CDM FIL	3074	3383
CNL	2894	3354
DLL MSFL	3074	3383
FDC CNL	3074	3383
ISF SONIC GR	61	3383
TEMP	2304	3341
VELOCITY	365	3383

Casing and leak-off tests

Casing type	Casing diam. [inch]	Casing depth [m]	Hole diam. [inch]	Hole depth [m]	LOT/FIT mud eqv. [g/cm3]	Formation test type
CONDUCTOR	30	123.0	36	126.0	0.00	LOT
SURF.COND.	20	340.0	26	354.0	1.42	LOT
INTERM.	13 3/8	1501.0	17 1/2	1516.0	2.08	LOT
INTERM.	9 5/8	3043.0	12 1/4	3053.0	1.66	LOT
LINER	7	3345.0	8 1/2	3365.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
123	1.68	24.0	5.7	WATER BASED	04.09.1989
123	1.68	23.0	5.7	WATER BASED	04.09.1989
123	1.60			WATER BASED	04.09.1989
145	1.60	23.0		WATER BASED	04.09.1989
291	1.60	22.0		WATER BASED	04.09.1989
1462	1.60	24.0		WATER BASED	04.09.1989
1462	1.60			WATER BASED	04.09.1989
1462	1.60	22.0		WATER BASED	04.09.1989
1462	1.60	22.0		WATER BASED	04.09.1989
1462	1.60	19.0		WATER BASED	04.09.1989
1462	1.60	18.0		WATER BASED	04.09.1989
1462	1.60			WATER BASED	04.09.1989

Thin sections at the Norwegian Offshore Directorate



Depth	Unit
14001.00	[ft]
14002.00	[ft]
14003.00	[ft]
14004.00	[ft]
14005.00	[ft]
14006.00	[ft]
14007.00	[ft]
14008.00	[ft]
14009.00	[ft]
14010.00	[ft]
14011.00	[ft]
14012.00	[ft]
14013.00	[ft]
14014.00	[ft]
14015.00	[ft]
14016.00	[ft]
14017.00	[ft]
14018.00	[ft]
14019.00	[ft]
14020.00	[ft]
14021.00	[ft]
14022.00	[ft]
14023.00	[ft]

Pressure plots

The pore pressure data is sourced from well logs if no other source is specified. In some wells where pore pressure logs do not exist, information from Drill stem tests and kicks have been used. The data has been reported to the NPD, and further processed and quality controlled by IHS Markit.

Document name	Document format	Document size [MB]
116 Formation pressure (Formasjonstrykk)	PDF	0.22

