



General information

Wellbore name	2/4-6
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	VEST EKOFISK
Discovery	2/4-6 Vest Ekofisk
Well name	2/4-6
Seismic location	
Production licence	018
Drilling operator	Phillips Petroleum Company Norway
Drill permit	44-L
Drilling facility	PENTAGONE 81
Drilling days	105
Entered date	28.08.1970
Completed date	10.12.1970
Release date	10.12.1972
Publication date	16.04.2007
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS/CONDENSATE
Discovery wellbore	YES
1st level with HC, age	PALEOCENE
1st level with HC, formation	EKOFISK FM
2nd level with HC, age	LATE CRETACEOUS
2nd level with HC, formation	TOR FM
Kelly bushing elevation [m]	24.0
Water depth [m]	69.0
Total depth (MD) [m RKB]	3411.0
Final vertical depth (TVD) [m RKB]	3411.0
Maximum inclination [°]	1.3
Bottom hole temperature [°C]	137
Oldest penetrated age	LATE CRETACEOUS
Oldest penetrated formation	TOR FM
Geodetic datum	ED50
NS degrees	56° 34' 0.4" N
EW degrees	3° 5' 8.2" E



NS UTM [m]	6269306.18
EW UTM [m]	505261.23
UTM zone	31
NPDID wellbore	181

Wellbore history

General

Well 2/4-6 (named 2/4-5X by operator Phillips) was drilled on a structure ca six km west off the Ekofisk discovery. The objective of the well was to test the Danian and Late Cretaceous limestone, which had proved oil productive in the other wells drilled within the block 2/4.

Operations and results

Wildcat well 2/4-6 was spudded with the semi-submersible installation Neptune 7 on 28 August 1970 and drilled to TD at 3411 m in the Late Cretaceous Tor Formation. The well was drilled with sweater and hi-vis mud down to 585 m, with seawater/drill aid mud from 585 m to 3107 m, and with seawater lignosulphonate mud from 3107 m to TD.

The well penetrated a thick, nearly complete Tertiary succession consisting mostly of shales and claystones. A ca 50 m thick sandy sequence with gas shows was encountered at 2956 m in the uppermost Paleocene. Danian Limestone (Ekofisk Formation) was penetrated at 3110 m and Late Cretaceous limestone (Tor Formation) was encountered at 3270 m. A rich condensate and gas was tested from these formations

Five conventional cores were cut between 3120.5 and 3223.4 m in the Ekofisk Formation. No wire line fluid samples were taken.

The well was permanently abandoned on 10 December 1970 as a gas and condensate discovery

Testing

Five drill stem tests through perforations of the 7" liner were carried out. The following results are maximum flow after acidization:

DST 1 tested the zone 3370 - 3374 m in the Tor Formation. It produced only water at a rate of 13 m³ /day. Bottom hole temperature (BHT) in the test was reported to be 136.7 deg C.

DST 2 tested the intervals 3271 - 3286 m and 3295 - 3310 m in the Tor Formation. This test flowed 568 Sm³ oil /day on a 1" choke. Oil gravity was 42.8 deg API and the GOR was 452 Sm³/Sm³. The BHT was reported to be 133.9 deg C.

DST 3 tested the interval 3243 - 3246 m in the lower Ekofisk Formation. It produced only water at a rate of 23 m³/day.

DST 4 tested the interval 3194 - 3216 m in the Ekofisk Formation. It flowed 609 Sm³ oil /day on a 1" choke. The oil gravity was 41.3 deg API and the GOR was 364 Sm³/Sm³. The BHT was reported to be 130 deg C.

DST 5 tested the interval 3124 - 3152 m in the Ekofisk Formation. It flowed 748 Sm³ oil /day on a 1" choke. The oil gravity was 44.6 deg API and the GOR was 539 Sm³/Sm³. The BHT was reported to be 129.4 deg C.

**Cuttings at the Norwegian Offshore Directorate**

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
1292.35	3410.71

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	10234.0	10265.0	[ft]
2	10289.0	10319.0	[ft]
3	10319.0	10349.0	[ft]
4	10349.0	10409.0	[ft]
5	10514.0	10564.0	[ft]

Total core sample length [m]	61.3
Cores available for sampling?	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
93	NORDLAND GP
1768	HORDALAND GP
2958	ROGALAND GP
2958	BALDER FM
2966	SELE FM
2971	LISTA FM
3091	VÅLE FM
3110	SHETLAND GP
3110	EKOFISK FM
3270	TOR FM

Geochemical information





Document name	Document format	Document size [MB]
181_1	pdf	0.07
181_2	pdf	3.65

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

Document name	Document format	Document size [MB]
181_01_WDSS_General_Information	pdf	0.17

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

Document name	Document format	Document size [MB]
181_01_2_4_6 (5X) Completion Report and Completion log	pdf	3.11
181_01_2_4_6(5X) Well Completion Report	pdf	3.11
181_02_2_4_6(5X) Mud Report	pdf	15.33
181_03_2_4_6 (5X) Complex Lithology Analysis	pdf	7.99
181_03_2_4_6(5X) Fluid Sample Analysis	pdf	5.66
181_03_2_4_6 (5X) Geochemical Analysis of Sidewall Core Sample	pdf	6.56
181_03_2_4_6 (5X) The Micropalaeontology and Stratigraphy	pdf	5.72
181_04_2_4_6(5X) Core Analysis Results	pdf	0.74
181_05_2_4_6(5X) DSTs	pdf	11.79

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	3370	3375	25.4
2.0	3271	3310	25.4
3.0	3243	3246	25.4
4.0	3195	3216	25.4
5.0	3125	3152	25.4





Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0				136
2.0				
3.0				
4.0				130
5.0	48.000	45.000	45.000	129

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0					
2.0	568	256736	0.812		452
3.0					
4.0	609	221676	0.819		364
5.0	747	402539	0.804		539

Logs

Log type	Log top depth [m]	Log bottom depth [m]
BHC GR	579	3387
CBL	1524	3389
DLL	3102	3389
FDC	3102	3389
GR	91	579
GR	3095	3391
HDT	3101	3389
IES	579	3390
ML MLL	3102	3390
SNP	3103	3390
VELOCITY	579	3387

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	130.0	36	130.0	0.00	LOT
SURF.COND.	20	578.0	26	580.0	0.00	LOT



INTERM.	13 3/8	1599.0	17 1/2	1600.0	0.00	LOT
INTERM.	9 5/8	3099.0	12 1/4	3100.0	0.00	LOT
LINER	7	3396.0	8 1/2	3396.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
130	0.99			seawater	
585	1.71			seawa/aid	
1014	1.71			seawa/aid	
1682	1.71			seawa/aid	
3107	1.73			seawa/aid	
3266	1.72			seawa/aid	