

**General information**

Wellbore name	2/5-1
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	TOR
Discovery	2/5-1 Tor
Well name	2/5-1
Seismic location	
Production licence	006
Drilling operator	Amoco Norway Oil Company
Drill permit	41-L
Drilling facility	ORION
Drilling days	114
Entered date	01.08.1970
Completed date	22.11.1970
Release date	22.11.1972
Publication date	02.04.2007
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
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]	27.0
Water depth [m]	68.0
Total depth (MD) [m RKB]	3972.0
Maximum inclination [°]	22
Bottom hole temperature [°C]	125
Oldest penetrated age	LATE JURASSIC
Oldest penetrated formation	FARSUND FM
Geodetic datum	ED50
NS degrees	56° 38' 19.95" N
EW degrees	3° 20' 7.94" E
NS UTM [m]	6277378.57



EW UTM [m]	520581.27
UTM zone	31
NPDID wellbore	178

Wellbore history

General

Wildcat well 2/5-1 is located ca 10 km northeast of the Ekofisk Field. It was drilled on an essentially northwest - southeast striking anticlinal seismic structure extending into the adjacent block 2/4.

The well is Reference Well for the Ekofisk Formation.

Operations and results

Well 2/5-1 was spudded with the jack-up installation Orion on 1 August 1970 and drilled to TD at 3972 m in Late Jurassic shales. At 2997 m cones of the bit was lost in the hole and five days were spent fishing for them. The well was planned vertical, and was essentially vertical with maximum deviation 1.5 deg down to 3238 m. From there deviation increased to 7.1 deg at 3639 m, 12.5 deg at 3821 m, 19.2 deg at 3932 m, and 21.9 deg at 3967 m. The well was drilled with seawater and bentonite down to 381 m and with a Drill aid/XP-20 mud with 3- 6 % diesel from 381 m to TD.

The Danian limestone (Ekofisk Formation) was encountered at 3041. Then a Late Cretaceous succession was penetrated with chinks of the Tor and Hod Formations at 3132 m and 3475 m, respectively, followed by the Blodøks Formation shales at 3551 m and the Hidra Formation chalk at 3594 m. Commercial quantities of hydrocarbons were encountered and tested in the Ekofisk and Tor Formations. The well also penetrated 133 m of Late Jurassic source rock quality shales. Organic geochemical analyses of these shales showed TOC in the range 2 - 4 % and thermal maturity corresponding to late oil window (%Ro around 0.8), in well position.

Twenty-three conventional cores were cut in the chalk. Ten were cut in the Ekofisk Formation (75.2 m recovered), and thirteen in the Tor Formation (171.6 m recovered). No wire line fluid samples were taken.

The well was permanently abandoned on 22 November 1970 as an oil discovery.

Testing

One open-hole DST and eight DSTs through liner perforation were performed. The open-hole DST (DST 1) tested the interval 3042 - 3101 m in the Ekofisk Formation. It flowed at maximum 209 Sm³ oil /day. The GOR was 190 and the oil gravity was 41.5 deg API.

The tests through perforations and after acid stimulation (DST 2 to DST 8) revealed flow rates from individual zones up to 731 Sm³ oil /day. This highest flow was obtained in DST 7 through a 24/64" choke from the interval 3154 - 3191 m in the Tor Formation. The gas/oil ratio and oil gravity in this test were 251 Sm³/Sm³ and 41.9 deg API, respectively.

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Cuttings at the Norwegian Offshore Directorate



Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
141.43	3971.54

Cuttings available for sampling?	NO
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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	9995.0	10018.0	[ft]
2	10021.0	10034.5	[ft]
3	10036.0	10043.0	[ft]
4	10043.0	10069.0	[ft]
5	10069.0	10101.0	[ft]
6	10101.0	10141.0	[ft]
7	10141.0	10175.0	[ft]
8	10175.0	10204.0	[ft]
9	10204.0	10251.0	[ft]
10	10251.0	10253.0	[ft]
11	10291.0	10314.5	[ft]
12	10314.5	10337.0	[ft]
13	10337.0	10372.7	[ft]
14	10387.0	10415.0	[ft]
15	10425.0	10439.0	[ft]
16	10439.0	10450.0	[ft]
17	10450.0	10479.0	[ft]
18	10479.0	10505.0	[ft]
19	10505.0	10559.0	[ft]
20	10559.0	10616.0	[ft]
21	10616.0	10699.0	[ft]
22	10699.0	10774.6	[ft]
23	10789.0	10878.0	[ft]

Total core sample length [m]	244.4
Cores available for sampling?	YES

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
3551.0	[m]	DC	OD



3560.0	[m]	DC	OD
3569.0	[m]	DC	OD
3578.0	[m]	DC	OD
3587.0	[m]	DC	OD
3597.0	[m]	DC	OD
3606.0	[m]	DC	OD
3615.0	[m]	DC	OD
3624.0	[m]	DC	OD
3633.0	[m]	DC	OD
3642.0	[m]	DC	OD
3652.0	[m]	DC	OD
3664.0	[m]	DC	OD
3673.0	[m]	DC	OD
3682.0	[m]	DC	OD
3691.0	[m]	DC	OD
3703.0	[m]	DC	OD
3712.0	[m]	DC	OD
3722.0	[m]	DC	OD
3731.0	[m]	DC	OD
3740.0	[m]	DC	OD
3749.0	[m]	DC	OD
3758.0	[m]	DC	OD
3767.0	[m]	DC	OD
3776.0	[m]	DC	OD
3786.0	[m]	DC	OD
3798.0	[m]	DC	OD
3807.0	[m]	DC	OD
3816.0	[m]	DC	OD
3825.0	[m]	DC	OD
3834.0	[m]	DC	OD
3844.0	[m]	DC	OD
3853.0	[m]	DC	OD
3862.0	[m]	DC	OD
3871.0	[m]	DC	OD
3880.0	[m]	DC	OD
3889.0	[m]	DC	OD
3898.0	[m]	DC	OD
3908.0	[m]	DC	OD
3917.0	[m]	DC	OD
3926.0	[m]	DC	OD



3935.0	[m]	DC	OD
3944.0	[m]	DC	OD
3953.0	[m]	DC	OD
3962.0	[m]	DC	OD
3972.0	[m]	DC	OD

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
95	NORDLAND GP
1704	HORDALAND GP
2920	ROGALAND GP
2920	BALDER FM
2929	SELE FM
2933	LISTA FM
3034	VÅLE FM
3041	SHETLAND GP
3041	EKOFISK FM
3132	TOR FM
3475	HOD FM
3551	BLODØKS FM
3594	HIDRA FM
3635	CROMER KNOLL GP
3635	RØDBY FM
3839	TYNE GP
3839	FARSUND FM

Geochemical information

Document name	Document format	Document size [MB]
178_1	pdf	0.27
178_2	pdf	1.79
178_3	pdf	0.76
178_4	pdf	2.20

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





Document name	Document format	Document size [MB]
178_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]
178_01_2_5_1_Completion_log	pdf	6.92
178_01_2_5_1_Completion_Report	pdf	23.39
178_01_2_5_1_Operator_Final_Well_Report	pdf	6.61
178_02_2_5_1_Cross_Section_Enclosure1	pdf	6.52
178_05_2_5_1_Gas_chrom_log	pdf	5.19

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	3042	3101	0.0
2.0	3274	3277	0.0
4.0	3244	3248	0.0
5.0	3285	3234	0.0
6.0	3225	3234	0.0
7.0	3154	3191	0.0
8.0	3043	3056	0.0

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0			46.000	121
2.0				
4.0				
5.0				
6.0				
7.0	48.000		48.000	
8.0				

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	209	223212			190





2.0					
4.0	425	612000			256
5.0	145				
6.0	445				
7.0	159	203838			228
8.0	230	65000			

Logs

Log type	Log top depth [m]	Log bottom depth [m]
BHC GR	378	3968
CAL	378	1600
CBL	110	3311
DLL	3043	3967
FDC GR	1591	3972
GR	122	378
HDT	1591	3971
IES	278	3971
MLL-C	3043	3362
NL CCL	2988	3311
VELOCITY	378	3968

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	127.0	36	128.0	0.00	LOT
SURF.COND.	20	378.0	26	378.0	0.00	LOT
INTERM.	13 3/8	1591.0	17 1/2	1601.0	0.00	LOT
INTERM.	9 5/8	3045.0	12 1/4	3055.0	0.00	LOT
PROD.	7	3327.0	8 1/2	3973.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
141	1.14	40.0		seawater	
2017	1.56			waterbased	



3081	1.71	45.0		waterbased	
3580	1.63	50.0		waterbased	
3811	1.63	44.0		waterbased	

Thin sections at the Norwegian Offshore Directorate

Depth	Unit
10000.00	[ft]
10010.00	[ft]
10018.00	[ft]
10407.00	[ft]