

**General information**

Wellbore name	1/5-2
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	FLYNDRE
Discovery	1/5-2 Flyndre
Well name	1/5-2
Seismic location	LINE PG 56 3445 SP.32
Production licence	018
Drilling operator	Phillips Petroleum Company Norway
Drill permit	100-L
Drilling facility	OCEAN VIKING
Drilling days	179
Entered date	19.10.1973
Completed date	15.04.1974
Release date	15.04.1976
Publication date	01.01.2010
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	YES
1st level with HC, age	PALEOCENE
1st level with HC, formation	FORTIES FM
2nd level with HC, age	CAMPANIAN
2nd level with HC, formation	HOD FM
3rd level with HC, age	CAMPANIAN
3rd level with HC, formation	TOR FM
Kelly bushing elevation [m]	27.0
Water depth [m]	70.0
Total depth (MD) [m RKB]	4287.0
Final vertical depth (TVD) [m RKB]	4287.0
Maximum inclination [°]	2
Oldest penetrated age	LATE PERMIAN
Oldest penetrated formation	ZECHSTEIN GP
Geodetic datum	ED50
NS degrees	56° 34' 41.59" N



EW degrees	2° 38' 30.53" E
NS UTM [m]	6270633.90
EW UTM [m]	477994.36
UTM zone	31
NPDID wellbore	238

Wellbore history

**General**

The Flyndre well (1/5-2) was drilled on a structural high situated in the Feda Graben of the North Sea close to the UK border. The principle objective horizons were the Paleocene and Jurassic sand sections which had produced oil in the UK 30/13-2 well and the NO 2/7-3 wells. It was estimated that at Paleocene depth the structure was an irregular dome about 4 miles in diameter, with 12 square miles of closure and 290 ft (88.4 m) of vertical relief while at Jurassic depth the structure was a NW-SE trending anticline 4.5 miles by 3.5 miles with 12 square miles of closure at 190 ft (57.9 m) of vertical relief. Planned TD was 15000 ft (4572 m), Triassic sands, or the Zechstein Group, whichever came first.

Operations and results

Well 1/5-2 was spudded on 19 October 1973, 15 m away from the original Flyndre well 1/5-1, which was junked at 491 m for technical reasons. Well 1/5-2 was drilled with the semi-submersible installation Ocean Viking. Total depth was set at 4287 m in Late Permian Zechstein salt. The well was drilled with seawater and hi-vis pills down to 494 m. The rest of the well was drilled with lignosulphonate mud.

The well had shows throughout the Paleocene and Late Cretaceous sections and four drill-stem tests were carried out.

The top sand in Paleocene at 2832 m (Forties Formation sand) produced oil upon testing. Mud log shows were present in the Danian, but testing proved the section to be tight and unproductive. A thick Late Cretaceous section was encountered with oil shows at the top of the Maastrichtian (Tor Formation) and in the Campanian (Lower Tor and Hod Formation) sections. Drill-stem tests were carried out in these zones and the Maastrichtian zone produced oil from fractured limestone at 3151.6 - 3174.2 m while the lower zone from 3337.6 - 3363.2 m was tight with only minor amounts of oil being recovered. The Early Cretaceous section, 281 m thick, consisted of sediments of Albian/Aptian and Barremian age. There were no shows in this section. The Jurassic section was encountered at 4203 m but contained only 24 m of Kimmeridgian shale. The Kimmeridgian rested directly upon the Zechstein Group at 4228 m.

No cores were cut and no wire line fluid samples were taken.

The well was permanently abandoned on 15 April October 1974 as an oil discovery.

Testing

Four intervals were perforated and tested.

DST I tested the interval 3337.6 - 3363.2 m in the lower Hod and upper Tor Formations produced a total of 5.6 Sm³ oil and 17.5 m³ of water. The oil gravity was 35 deg API.

DST II tested the interval 3151.6 - 3174.2 m in the Tor Formation produced 501 Sm³ oil, 180661 Sm³ gas, and 49 m³ water /day through a 54/64" choke. The GOR was 361 Sm³/Sm³ and the oil gravity was 42 deg API.

DST III tested the interval 3076.7 - 3102.9 m in the Ekofisk Formation produced total 30-40 m³ water with 6 - 20% oil.

DST IV tested the interval 2831.6 - 2841.3 m in the Forties Formation. It produced 37 sm³ oil, 16707 Sm³ gas, and 24 m³ water /day. The GOR was 456 Sm³/Sm³ and the oil gravity was 42.6 deg API.

Cuttings at the Norwegian Offshore Directorate



Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
563.88	4282.44

Cuttings available for sampling?	NO
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Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
7878.0	[ft]	DC	RRI
8030.0	[ft]	DC	RRI
8090.0	[ft]	DC	RRI
8150.0	[ft]	DC	RRI
8210.0	[ft]	DC	RRI
8270.0	[ft]	DC	RRI
8330.0	[ft]	DC	RRI
8390.0	[ft]	DC	RRI
8450.0	[ft]	DC	RRI
8510.0	[ft]	DC	RRI
8570.0	[ft]	DC	RRI
8630.0	[ft]	DC	RRI
8690.0	[ft]	DC	RRI
8750.0	[ft]	DC	RRI
8810.0	[ft]	DC	RRI
8870.0	[ft]	DC	RRI
8930.0	[ft]	DC	RRI
8990.0	[ft]	DC	RRI
9050.0	[ft]	DC	RRI
9110.0	[ft]	DC	RRI
9170.0	[ft]	DC	RRI
9230.0	[ft]	DC	RRI
9290.0	[ft]	DC	RRI
9350.0	[ft]	DC	RRI
9410.0	[ft]	DC	RRI
9470.0	[ft]	DC	RRI
9530.0	[ft]	DC	RRI
9590.0	[ft]	DC	RRI
9650.0	[ft]	DC	RRI
9710.0	[ft]	DC	RRI
9770.0	[ft]	DC	RRI
9830.0	[ft]	DC	RRI



9890.0	[ft]	DC	RRI
9950.0	[ft]	DC	RRI
10000.0	[ft]	DC	RRI
10060.0	[ft]	DC	RRI
10120.0	[ft]	DC	RRI
13690.0	[ft]	DC	RRI
13750.0	[ft]	DC	RRI

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
97	NORDLAND GP
1707	HORDALAND GP
2831	ROGALAND GP
2832	FORTIES FM
2840	SELE FM
2848	LISTA FM
3033	MAUREEN FM
3069	SHETLAND GP
3069	EKOFISK FM
3152	TOR FM
3342	HOD FM
3922	CROMER KNOLL GP
4203	TYNE GP
4228	ZECHSTEIN GP

Composite logs

Document name	Document format	Document size [MB]
238	pdf	0.65

Geochemical information

Document name	Document format	Document size [MB]
238_1	pdf	0.28
238_2	pdf	0.40





238 3	pdf	1.59
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Documents - older Norwegian Offshore Directorate WDSS reports and other related documents

Document name	Document format	Document size [MB]
238 01 WDSS General Information	pdf	0.26

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

Document name	Document format	Document size [MB]
238 01 1 5 2 CompletionLog	pdf	2.40
238 01 1 5 2 CompletionReport	pdf	21.98

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	3338	3363	0.0
2.0	3152	3174	21.4
3.0	3076	3103	0.0
4.0	2832	2841	0.0

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

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	5		0.870		
2.0	500	180662	0.810		361
3.0	15				
4.0	37	16707	0.820		456





Logs

Log type	Log top depth [m]	Log bottom depth [m]
BCS GR	1553	14055
DLL	8950	13029
FDC	9000	13029
IES	1553	14035
MLL ML	9958	13028
SNP	9958	13029

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	133.0	36	133.0	0.00	LOT
SURF.COND.	20	475.0	26	482.0	0.00	LOT
INTERM.	13 3/8	1213.0	17 1/2	1229.0	0.00	LOT
INTERM.	9 5/8	3039.0	12 1/4	3048.0	0.00	LOT
LINER	7	3971.0	8 1/2	3973.0	0.00	LOT
OPEN HOLE		4285.0	6	4285.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
130	1.05			seawater	
914	1.31	40.0		water based	
1828	1.31	50.0		water based	
2438	1.55	55.0		water based	
3048	1.67	55.0		water based	
3438	1.55	55.0		water based	
3505	1.67	55.0		water based	