General information

Wellbore name	1/2-1
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	BLANE
Discovery	1/2-1 Blane
Well name	1/2-1
Seismic location	PW 8303A - 10 SP. 290
Production licence	143
Drilling operator	Phillips Petroleum Norsk AS
Drill permit	604-L
Drilling facility	ROSS ISLE
Drilling days	77
Entered date	20.03.1989
Completed date	04.06.1989
Release date	04.06.1991
Publication date	19.12.2007
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	YES
1st level with HC, age	PALEOCENE
1st level with HC, formation	FORTIES FM
Kelly bushing elevation [m]	22.0
Water depth [m]	72.0
Total depth (MD) [m RKB]	3574.0
Maximum inclination [°]	2
Bottom hole temperature [°C]	147
Oldest penetrated age	CAMPANIAN
Oldest penetrated formation	TOR FM
Geodetic datum	ED50
NS degrees	56° 53' 15.07'' N
EW degrees	2° 28' 35.7'' E
NS UTM [m]	6305128.26
EW UTM [m]	468106.29
UTM zone	31
NPDID wellbore	1382

Wellbore history

General

Well 1/2-1 is located in the Central Graben, about 200 m from the UK border in the North Sea. The main objective was Paleocene sands of the Rogaland Group. The secondary target was the chalk formations, although these were possibly not enough fractured to represent a reservoir.

Operations and results

Wildcat well 1/2-1 was spudded with the semi-submersible installation Ross Isle on 20 March 1989 and drilled to TD at 3574 m in the Late Cretaceous Tor Formation. While cutting of core no 7, the elevators accidentally opened and dropped the string. Two attempts were made to recover the string with no success. The hole was sidetracked from 3078.5 m and core no 8 was cut. The well was drilled with seawater down to 645 m, with native mud (water mixed with clays from the borehole itself) from 645 m to1525 m, and with seawater from 1525 m to TD. No shallow gas was detected in the hole.

The Forties Formation came in at 3121 m. The formation was hydrocarbon bearing down to 3142.5 m as confirmed by both electric logs and the RFT pressure gradient. The reservoir sandstones of the Forties Formation showed good to excellent reservoir properties. Average core porosity was 18.5% and test permeability was measured to 49 mD.

Shows on cores were recorded down to core # 8 where they gradually decreased to zero at 3166 m. From the RFT data two water gradients were identified below the oil zone. A shift of 8 psi between them suggested the existence of an impermeable barrier around 3160.2 and 3162 m. Core saturations and fluorescence indicated the potential existence of a thin (4 m) oil zone below this barrier. This zone was not identified from the logs and was not evaluated for a test due to lack of data at that point.

The Ekofisk formation was encountered at 3407 m, and the Tor formation at 3514 m. Both formations were water bearing.

A total of 8 cores were cut in the Forties Formation, seven in the first hole and the eighth in the sidetrack. No wire line fluid samples were taken.

The well was permanently abandoned on 4 June 1989 as an oil/gas discovery.

Testing

Two intervals were perforated and tested with the intention to first test the oil zone and then open up a deeper zone to produce and sample formation water. The perforated intervals were 3122 - 3137 m in the oil zone and 3145.5 - 3157.7 m in the water zone. The oil test produced up to 859 Sm3 oil and 57200 Sm3 gas/day on a 64/64" choke. The GOR was 67 Sm3/Sm3 and the oil gravity was 42.5 deg API. The maximum temperature recorded during the test was 133.8 deg C. Analysis of the final co-mingled oil + water test confirmed that the lower perforation interval produced only water. This confirmed the contact at 3142.5 m to be an OWC.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
658.36	3573.78

Cuttings available for sampling?	YES

Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	10208.0	10208.4	[ft]
2	10216.0	10233.0	[ft]
4	10256.0	10286.0	[ft]
5	10286.0	10358.0	[ft]
6	10358.0	10364.6	[ft]
7	10368.0	10377.6	[ft]
8	10368.0	10395.3	[ft]

Total core sample length [m]	49.7
Cores available for sampling?	YES

Core photos


10208-10228ft


19228-10262ft


10262-10277ft


10277-10292ft


10292-10307ft


10307-10322ft


10322-10337ft


10337-10352ft


10352-10364ft


10368-10377ft


10368-10383ft


10383-10395ft

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
3163.1	[m]	C	HYDRO
8880.0	[ft]	DC	SSI
8940.0	[ft]	DC	SSI
9000.0	[ft]	DC	SSI
9060.0	[ft]	DC	SSI
9120.0	[ft]	DC	SSI
9180.0	[ft]	DC	SSI
9240.0	[ft]	DC	SSI
9300.0	[ft]	DC	SSI
9363.0	[ft]	SWC	SSI
9420.0	[ft]	DC	SSI
9480.0	[ft]	DC	SSI
9540.0	[ft]	DC	SSI
9585.0	[ft]	SWC	SSI
9600.0	[ft]	DC	SSI
9660.0	[ft]	DC	SSI
9684.0	[ft]	SWC	SSI
9720.0	[ft]	DC	SSI
9780.0	[ft]	DC	SSI
9840.0	[ft]	DC	SSI
9900.0	[ft]	DC	SSI
9930.0	[ft]	DC	SSI
9960.0	[ft]	SWC	SSI
9990.0	[ft]	SWC	SSI
10020.0	[ft]	DC	SSI
10050.0	[ft]	DC	SSI
10080.0	[ft]	DC	SSI
10110.0	[ft]	DC	SSI
10140.0	[ft]	DC	SSI
10170.0	[ft]	DC	SSI
10200.0	[ft]	DC	SSI
10229.9	[ft]	C	SSI
10276.3	[ft]	C	SSI
10308.6	[ft]	C	SSI
10339.3	[ft]	C	SSI
10362.0	[ft]	C	SSI
10369.3	[ft]	C	SSI

10400.0	[ft]	DC	SSI
10460.0	[ft]	DC	SSI
10490.0	[ft]	DC	SSI
10520.0	[ft]	DC	SSI
10580.0	[ft]	DC	SSI
10640.0	[ft]	DC	SSI
10700.0	[ft]	DC	SSI
10744.0	[ft]	SWC	SSI
10780.0	[ft]	DC	SSI
10810.0	[ft]	DC	SSI
10850.0	[ft]	SWC	SSI
10880.0	[ft]	SWC	SSI
10910.0	[ft]	DC	SSI
10940.0	[ft]	DC	SSI
10970.0	[ft]	DC	SSI
11000.0	[ft]	DC	SSI
11030.0	[ft]	DC	SSI
11060.0	[ft]	DC	SSI
11091.0	[ft]	SWC	SSI

Oil samples at the Norwegian Offshore Directorate

Test type	Bottle number	Top depth MD [m]	Bottom depth MD [m]	Fluid type	Test time	Samples available
DST	DST1	3122.30	3137.00		27.05.1989 - 06:00	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
94	NORDLAND GP
1777	HORDALAND GP
3059	ROGALAND GP
3059	BALDER FM
3121	FORTIES FM
3275	LISTA FM
3335	MAUREEN FM
3407	SHETLAND GP

3407	EKOFISK FM
3514	TOR FM

Geochemical information

Document name	Document format	Document size [MB]
1382_1	pdf	0.17
1382_2	pdf	3.41

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

Document name	Document format	Document size [MB]
1382_01_WDSS_General_Information	pdf	0.26
1382_02_WDSS_completion_log	pdf	0.17

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

Document name	Document format	Document size [MB]
1382_1_2_1_COMPLETION_LOG	pdf	1.76
1382_1_2_1_COMPLETION_REPORT	pdf	155.63

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	3122	3137	25.4

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

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	859	57000	0.810		66

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CST GR	666	3557
DIL SLS GR	645	3052
DLL MSFL GR	3052	3572
FMS GR	3052	3576
LDL CNL NGT	645	3575
MWD - GR RES DIR	308	5023
RFT GR	3059	3208
SLS GR	3052	3573
TEST	1	2
TEST	2	3
TEST4	0	0
VSP	631	3468

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	170.0	36	171.0	0.00	LOT
INTERM.	20	645.0	26	648.0	1.69	LOT
INTERM.	13 3/8	1524.0	17 1/2	1531.0	1.82	LOT
INTERM.	9 5/8	3052.0	12 1/4	3056.0	1.88	LOT
LINER	7	3569.0	8 1/2	3576.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
171	1.04			WATER BASED	29.03.1989
279	1.04			WATER BASED	29.03.1989
546	1.04			WATER BASED	29.03.1989
564	1.04			WATER BASED	29.03.1989
648	1.04			WATER BASED	29.03.1989
650	1.04			WATER BASED	29.03.1989
651	1.05	14.0	5.7	WATER BASED	30.03.1989
1197	1.16	62.0	1.9	WATER BASED	31.03.1989

1531	1.44	21.0	3.4	WATER BASED	04.04.1989
1531	1.44	8.0	16.3	WATER BASED	03.04.1989
1531	1.44	9.0	14.4	WATER BASED	03.04.1989
1531	1.44	35.0	3.8	WATER BASED	03.04.1989
1783	1.44	20.0	3.8	WATER BASED	05.04.1989
2199	1.50	23.0	10.5	WATER BASED	06.04.1989
2504	1.53	20.0	9.6	WATER BASED	07.04.1989
2906	1.58	19.0	11.0	WATER BASED	10.04.1989
3050	1.62	11.0	7.7	WATER BASED	10.04.1989
3056	1.62	15.0	7.7	WATER BASED	11.04.1989
3056	1.62	15.0	7.7	WATER BASED	11.04.1989
3056	1.64	11.0	5.7	WATER BASED	12.04.1989
3056	1.64	13.0	5.7	WATER BASED	14.04.1989
3056	1.64	13.0	4.8	WATER BASED	17.04.1989
3056	1.64	13.0	4.8	WATER BASED	17.04.1989
3056	1.64	13.0	4.8	WATER BASED	17.04.1989
3056	1.62	14.0	7.2	WATER BASED	10.04.1989
3056	1.64	12.0	5.7	WATER BASED	13.04.1989
3059	1.61	18.0	6.2	WATER BASED	27.04.1989
3071	1.61	15.0	4.8	WATER BASED	26.04.1989
3109	1.64	16.0	8.1	WATER BASED	17.04.1989
3109	1.64	16.0	8.1	WATER BASED	17.04.1989
3109	1.64	14.0	7.7	WATER BASED	17.04.1989
3109	1.64	14.0	7.7	WATER BASED	17.04.1989
3109	1.64	16.0	8.1	WATER BASED	17.04.1989
3109	1.64	14.0	7.7	WATER BASED	17.04.1989
3114	1.64	16.0	7.2	WATER BASED	19.04.1989
3117	1.61	18.0	6.7	WATER BASED	28.04.1989
3125	1.64	19.0	8.1	WATER BASED	19.04.1989
3126	1.63	19.0	6.7	WATER BASED	20.04.1989
3144	1.61	21.0	4.8	WATER BASED	02.05.1989
3154	1.62	20.0	5.7	WATER BASED	21.04.1989
3160	1.61	21.0	6.7	WATER BASED	24.04.1989
3160	1.61	21.0	6.7	WATER BASED	02.05.1989
3164	1.61	18.0	6.2	WATER BASED	24.04.1989
3164	1.61	18.0	5.7	WATER BASED	24.04.1989
3164	1.61	19.0	5.7	WATER BASED	26.04.1989
3170	1.61	22.0	6.2	WATER BASED	02.05.1989
3185	1.09	6.0	5.3	WATER BASED	22.05.1989
3247	1.58	23.0	6.2	WATER BASED	02.05.1989

3320	1.56	22.0	5.3	WATER BASED	03.05.1989
3361	1.57	21.0	7.7	WATER BASED	08.05.1989
3361	1.57	22.0	10.5	WATER BASED	08.05.1989
3361	1.56	20.0	7.7	WATER BASED	05.05.1989
3361	1.56	22.0	7.2	WATER BASED	05.05.1989
3384	1.57	21.0	8.1	WATER BASED	08.05.1989
3460	1.56	19.0	7.7	WATER BASED	10.05.1989
3488	1.57	21.0	7.7	WATER BASED	10.05.1989
3517	1.59	17.0	6.7	WATER BASED	19.05.1989
3517	1.38	14.0	4.3	WATER BASED	23.05.1989
3517	1.38	13.0	3.8	WATER BASED	24.05.1989
3517	1.38	12.0	3.8	WATER BASED	26.05.1989
3517	1.38	12.0	2.9	WATER BASED	29.05.1989
3517	1.38	12.0	2.9	WATER BASED	29.05.1989
3517	1.38	12.0	3.8	WATER BASED	29.05.1989
3517	1.38	16.0	3.8	WATER BASED	30.05.1989
3517	1.44	14.0	3.8	WATER BASED	31.05.1989
3517	1.44	14.0	3.8	WATER BASED	01.06.1989
3517	1.44			WATER BASED	05.06.1989
3517	1.59	17.0	5.7	WATER BASED	22.05.1989
3517	1.38	13.0		WATER BASED	25.05.1989
3529	1.56	18.0	8.6	WATER BASED	11.05.1989
3574	1.59	22.0	8.1	WATER BASED	16.05.1989
3574	1.59	21.0	8.6	WATER BASED	16.05.1989
3574	1.59	21.0	8.1	WATER BASED	16.05.1989
3574	1.59	21.0	8.6	WATER BASED	18.05.1989
3574	1.59	19.0	8.1	WATER BASED	18.05.1989
3574	1.59	17.0	7.7	WATER BASED	18.05.1989
3574	1.57	19.0	8.1	WATER BASED	12.05.1989

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]
1382_Formation_pressure_(Formasjonstrykk)	pdf	0.21