General information

Wellbore name	33/12-1
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	STATFJORD
Discovery	33/12-1 Statfjord
Well name	33/12-1
Seismic location	LINE ANO 73-12 SP.58
Production licence	037
Drilling operator	Mobil Exploration Norway INC
Drill permit	101-L
Drilling facility	WAAGE DRILL I
Drilling days	139
Entered date	01.12.1973
Completed date	18.04.1974
Release date	18.04.1976
Publication date	21.05.2015
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	YES
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	BRENT GP
Kelly bushing elevation [m]	27.0
Water depth [m]	146.0
Total depth (MD) [m RKB]	3060.0
Bottom hole temperature [°C]	66
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	LUNDE FM
Geodetic datum	ED50
NS degrees	61° 12' 14.7'' N
EW degrees	1° 49' 28.5'' E
NS UTM [m]	6786248.57
EW UTM [m]	436834.08
UTM zone	31
NPDID wellbore	417

Wellbore history

General

Well 33/12-1 is the Statfjord Field discovery well. The well was drilled ca 400 m east of the UK boundary. The Statfjord Field is located in the Tampen Spur area of the North Sea. The drilled structure is a west tilted fault block, forming part of a structural trend extending across the U.K. - Norway boundary. The trapping mechanism for the prospect was westerly dipping Jurassic beds bevelled at the Late Kimmerian regional unconformity. Cretaceous mudstones and marls provided the seal. The Brent Field is located on the southwestern U.K. portion of the same structural complex. The primary objective of the well was the Middle Jurassic sandstone section known to be productive in the U.K. Brent Field. Secondary objectives were Lias (Early Jurassic) and Triassic sands. The Paleocene section, which is structurally high, was an additional objective although nearby wells did not have reservoir rocks in this section.

Operations and results

Well 33/12-1 was spudded with the semi-submersible installation Waage Drill I on 1 December 1973 and drilled to TD at 3060 m in the Triassic Lunde Formation. After drilling to 466 m, TD in 26" section, 47 days were spent due to rough weather and problems with tensioners and riser. After this operations proceeded without significant technical problems, but the weather caused much interruptions and WOW.

There were oil shows with relatively high gas readings in the interbedded siltstones and sandstones in the Paleocene section and throughout the Maastrichtian. The Brent Group was encountered at 2409 m and was oil filled down to top Dunlin Group at 2570 m. The oil-water contact was not present in this well. From log analysis, 148 m of net sand with an overall average porosity of more than 28% was estimated. Water saturation averaged 13%. The Early Jurassic and Triassic sections were water bearing.

A total of 72.2 m core was recovered in eight cores with variable recovery from 11 to 100%. Cores 1 to 7 were cut in the Brent Group from 2423 m to 2557 m while core 8 was cut from 2845 to 2853 m in the Statfjord Group. No fluid samples were taken on wire line.

The well was permanently abandoned on 18 April 1974 as an oil discovery.

Testing

Four Drill Stem Tests were conducted in the Brent Group.

DST 1 tested the interval 2565 to 2570 m. It produced 400 Sm3 oil and 66600 Sm3 gas /day through a 1/2” choke. The GOR was 166 Sm3/Sm3 and the oil gravity was 37 °API and the gas gravity was 0.705 (air = 1). The DST temperature was 90.6 °C.

DST 2 tested the interval 2484 to 2493 m but was a failure.

DST 3 tested the interval 2463 to 2501 m. It produced 853 Sm3 oil and 156000 Sm3 gas /day through a 1/2” choke. The GOR was 183 Sm3/Sm3 and the oil gravity was 36.1 °API and the gas gravity was 0.675 (air = 1). The DST temperature was 88.9 °C. On choke 3/4” oil and gas production was nearly doubled.

DST 4 tested the interval 2409 to 2414 m. It produced 511 Sm3 oil and 86500 Sm3 gas /day through a 1/2” choke. The GOR was 169 Sm3/Sm3 and the oil gravity was 37.5 °API and gas gravity was 0.700 (air = 1). The maximum DST temperature, measured in the last flow period, was 88.9 °C.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
2420.11	3060.19

Cuttings available for sampling?	NO

Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	7950.0	7989.0	[ft]
2	8010.0	8023.0	[ft]
3	8032.0	8040.0	[ft]
4	8145.0	8205.0	[ft]
5	8205.0	8244.0	[ft]
6	8265.0	8272.0	[ft]
7	8343.0	8388.0	[ft]
8	9334.0	9359.0	[ft]

Total core sample length [m]	71.9
Cores available for sampling?	YES

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
7000.0	[ft]	DC	
7100.0	[ft]	DC	
7200.0	[ft]	DC	
7300.0	[ft]	DC	
7400.0	[ft]	DC	
7500.0	[ft]	DC	
7600.0	[ft]	DC	
7690.0	[ft]	DC	
7790.0	[ft]	DC	
7870.0	[ft]	DC	
7890.0	[ft]	DC	
7900.0	[ft]	DC	
8000.0	[ft]	DC	

8100.0	[ft]	DC	
8200.0	[ft]	DC	
8300.0	[ft]	DC	
8400.0	[ft]	DC	
8500.0	[ft]	DC	
8600.0	[ft]	DC	
8700.0	[ft]	DC	
8800.0	[ft]	DC	
8900.0	[ft]	DC	
9000.0	[ft]	DC	
9100.0	[ft]	DC	
9200.0	[ft]	DC	
9300.0	[ft]	DC	
9400.0	[ft]	DC	
9500.0	[ft]	DC	
9600.0	[ft]	DC	
9700.0	[ft]	DC	
9800.0	[ft]	DC	
9900.0	[ft]	DC	
10000.0	[ft]	DC	
10030.0	[ft]	DC	

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
172	NORDLAND GP
1647	ROGALAND GP
1647	BALDER FM
1705	SELE FM
1876	SHETLAND GP
2398	CROMER KNOLL GP
2402	VIKING GP
2409	BRENT GP
2570	DUNLIN GP
2836	STATFJORD GP
2960	LUNDE FM

Geochemical information

Document name	Document format	Document size [MB]
417_GCH_1	pdf	0.03

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

Document name	Document format	Document size [MB]
417_01_WDSS_General_Information	pdf	0.27

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

Document name	Document format	Document size [MB]
417_33_12_1_Completion_report_and_log	pdf	5.63
417_33_12_1_COMPLETION_LOG	pdf	1.94
417_33_12_1_COMPLETION_REPORT	pdf	5.63

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	2565	2570	12.5
2.0	2484	2493	0.0
3.0	2463	2501	12.5
4.0	2409	2414	19.0

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	400	6660	0.840	0.700	

2.0					
3.0	853	27011	0.840	0.670	
4.0	1670	86479	0.084		

Logs

Log type	Log top depth [m]	Log bottom depth [m]
BHC	451	1615
BHC C	1601	3053
CDM	1601	3063
CDM AP	1601	3063
CDM PP	2683	3063
CNL	1586	2697
DLL	2286	2691
FDC CNL	1586	3057
IES	451	3062
ML C	1601	2696
ML MLL	1601	3061
VELOCITY	451	3058

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	223.0	36	223.0	0.00	
SURF.COND.	20	453.0	26	466.0	0.00	
INTERM.	13 3/8	1608.0	17 1/2	1625.0	0.00	
INTERM.	9 5/8	2683.0	12 1/4	2699.0	0.00	
OPEN HOLE		3060.0	8 1/2	3060.0	0.00	