General information

Wellbore name	16/1-6 S
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Press release	link to press release
Factmaps in new window	link to map
Main area	NORTH SEA
Discovery	16/1-6 S (Verdandi)
Well name	16/1-6
Seismic location	SNST3D-inline 4379 & crossline 5037
Production licence	167
Drilling operator	Statoil ASA (old)
Drill permit	1052-L
Drilling facility	BORGLAND DOLPHIN
Drilling days	17
Entered date	22.05.2003
Completed date	07.06.2003
Release date	07.06.2005
Publication date	15.06.2005
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL/GAS
Discovery wellbore	YES
1st level with HC, age	EOCENE
1st level with HC, formation	GRID FM
2nd level with HC, age	PALEOCENE
2nd level with HC, formation	HEIMDAL FM
Kelly bushing elevation [m]	31.0
Water depth [m]	112.0
Total depth (MD) [m RKB]	1997.0
Final vertical depth (TVD) [m RKB]	1909.0
Maximum inclination [°]	33.6
Bottom hole temperature [°C]	87
Oldest penetrated age	PALEOCENE
Oldest penetrated formation	EKOFISK FM
Geodetic datum	ED50
NS degrees	58° 59' 27.95'' N
EW degrees	2° 17' 43.07'' E

NS UTM [m]	6539424.89
EW UTM [m]	459501.21
UTM zone	31
NPDID wellbore	4711

Wellbore history

General

Wildcat well16/1-6 S is located on the Utsira High in the North Sea. The objective was to test the hydrocarbon potential of the Verdandi prospect on Paleocene level in a favourable position with respect to an observed DHI, interpreted tentatively as a gas-oil contact in a reservoir sand.

Operations and results

Wildcat well 16/1-6 S was spudded with the semi-submersible installation Borgland Dolphin on 22 May 2003 and drilled to TD at 1997 m in the Late Cretaceous Ekofisk Formation. Sidewall coring and VSP logging could not be performed below 1762 m due to hole problems. Apart from this no significant problems were encountered in the operations. The well was drilled with seawater and viscous bentonite/polymer pills down to 551 m, with KCl/polymer/glycol (Glydril) mud from 551 m to 1200 m, and with oil based mud (Novatec pseudo oil based) from 1200 m to TD.

MWD logs and drill gas indicated shallow gas in a sandstone stringer at 603 m. This gas correlate well with nearby wells, particularly well 16/1-4.

Grid sandstones were encountered between 1489.5 m (1451 m TVD MSL) to 1685 m (1617.5 m TVD MSL). Top Heimdal Formation came in at 1861.5 m (1765 m TVD MSL). It proved to be slightly deeper and significantly thinner than expected. Hydrocarbons were proven in the Grid sands as well as in the Heimdal sand. A distinct gas peak of 2.55 %, C1 to C4, was recorded from 1498 m in the upper Grid Formation. Log responses indicated thin, hydrocarbon filled stringers of sand positioned above the massive Grid sandstone. Cuttings exhibited calcareous sand with traces of hydrocarbon stain and with spotty to even, bright, bluish white, direct fluorescence with instant, white cut fluorescence. MDT hydrocarbon samples confirmed the presence of oil, with a density of 0.857 g/cm³. No shows were seen in the underlying, massive Grid sandstone with logs confirming a water-wet sandstone. Furthermore gas was found in the Heimdal Formation with a ?gas down to? situation. One conventional core was cut from 1872 m to 1899 m in the Heimdal Formation. Sidewall cores were recovered from the Grid Formation sandstones. MDT hydrocarbon samples were collected from 1499 m in the Grid Formation and 1870.5 m in the Heimdal Formation. Oil based mud contamination was as high as 59 % in the Heimdal sample which gave limited value for PVT analysis. The oil sample collected in the Grid sandstone was of good quality with contamination calculated to 16 %.

The well was permanently abandoned on 7 June as an oil and gas discovery.

Testing

No drill stem test was performed.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
560.00	1989.00

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	1872.0	1898.9	[m]

Total core sample length [m]	26.9
Cores available for sampling?	YES

Core photos


1972-1876m


1876-1880m


1880-1884m


1884-1888m


1888-1890m


1894-1896m


1896-1898m

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
143	NORDLAND GP
722	UTSIRA FM
783	NO FORMAL NAME
830	HORDALAND GP
866	SKADE FM

1154	NO FORMAL NAME
1490	GRID FM
1550	NO FORMAL NAME
1597	GRID FM
1602	NO FORMAL NAME
1672	GRID FM
1685	NO FORMAL NAME
1783	ROGALAND GP
1783	BALDER FM
1817	SELE FM
1824	LISTA FM
1862	HEIMDAL FM
1876	LISTA FM
1932	VÅLE FM
1977	SHETLAND GP
1977	EKOFISK FM

Composite logs

Document name	Document format	Document size [MB]
4711	pdf	0.19

Geochemical information

Document name	Document format	Document size [MB]
4711_1	pdf	0.07

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

Document name	Document format	Document size [MB]
4711_16_1_6_S_COMPLETION_LOG	.pdf	1.01
4711_16_1_6_S_COMPLETION_REPORT	.PDF	10.94

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CST GR	1495	1748
MDT GR	1499	1881
MWD - AUTOTRACK MPR	1169	1997
MWD - MPR	203	1206
PEX AIT DSI	1197	1992
VSP GR	240	1745

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	203.0	36	303.0	0.00	LOT
SURF.COND.	20	546.0	26	546.0	1.82	LOT
INTERM.	13 3/8	1197.0	17 1/2	1197.0	1.60	LOT
OPEN HOLE		1997.0	8 1/2	1997.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
207	1.03			SW / BENTONITE 1	
551	1.14	15.0		GLYDRIL 10	
1206	1.21	13.0		GLYDRIL 74	
1711	1.38	29.0		NOVATEC 55	

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]
4711_Formation_pressure_(Formasjonstrykk)	pdf	0.19