General information

Wellbore name	16/7-8 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
Well name	16/7-8
Seismic location	Es9401 R99- inline 1039 & crossline6364
Production licence	072 B
Drilling operator	Esso Exploration and Production Norway A/S
Drill permit	1043-L
Drilling facility	DEEPSEA BERGEN
Drilling days	33
Entered date	17.12.2002
Completed date	19.01.2003
Release date	19.01.2005
Publication date	11.02.2005
Purpose - planned	WILDCAT
Reentry	NO
Content	DRY
Discovery wellbore	NO
Kelly bushing elevation [m]	23.0
Water depth [m]	79.5
Total depth (MD) [m RKB]	2900.0
Final vertical depth (TVD) [m RKB]	2645.3
Maximum inclination [°]	37.8
Bottom hole temperature [°C]	104
Oldest penetrated age	TRIASSIC
Oldest penetrated formation	SKAGERRAK FM
Geodetic datum	ED50
NS degrees	58° 20' 22.06'' N
EW degrees	2° 0' 35.15'' E
NS UTM [m]	6467078.59
EW UTM [m]	442021.30
UTM zone	31
NPDID wellbore	4612

Wellbore history

General

Wildcat well 16/7-8 S was drilled in a water depth of 79.5 m in PL072B to test the hydrocarbon potential of the Beta West prospect 3km north of the Sigyn field, 3km east of the Sleipner East Field.

The Beta West prospect is located in the Ling Graben, south of the Utsira High, on the eastern margin of the South Viking Graben. The primary reservoir and the main target of the well were continental, fluvial sandstones (red beds) of the Skagerrak Formation with thin Upper Jurassic shallow marine sandstone, overlaying the Skagerrak Formation. The Beta West structure is defined by a 4-way dip closure.

Operations and results

The well was spudded with the semi-submersible installation "Deepsea Bergen" on 17 December 2002 and drilled deviated to a total depth of 2900 m MD (2645.5 mTVD) in the Triassic Skagerrak Formation. The well was drilled as a deviated well due to shallow gas concerns on the vertical well location. The well was drilled using sea water/high viscosity sweeps down to 445 m, with Glydril (KCl/Glycol WBM) from 445 m to 1319 m and Versavert OBM from 1319 m to TD. Shallow gas was expected at 234 m TVD and at 634 m TVD. Sandstones were observed in both intervals but proved to be water wet. The top of the reservoir was penetrated at 2585 m TVD, 25 m deeper than prognosed. The reservoir consists of approx. 21 m (vertical thickness) with Jurassic sandstone above the Skagerrak Formation. The base of the Skagerrak Formation was not penetrated in this well. The reservoirs proved to be water bearing without any indications of hydrocarbons.

No wireline logs were run in this well. MWD logs were run as follows: gamma ray and resistivity in all sections from the 30" casing shoe to TD. Pressure while drilling was recorded in the 9 7/8" pilot hole and in the 8 1/2" section. Neutron and density were logged in the 8 1/2" hole. One oriented core was cut in the interval 2827 - 2874.5 m MD, but only 2.9 m out of 47.5 m were recovered. The recovered interval (2827 - 2829.9 m MD) represents the Hugin Formation. The low core recovery (6.1%) was due to jamming of the bit when the drillstring was rotated without circulation with the bit at bottom. This is not according to procedures and should be avoided. Acquisition of the orientation data proved to be trouble-free. No fluid sample was collected. No formation pressure data was measured in this well. The pore pressure evaluation is based on MWD log data and drilling parameters. A normal pore pressure gradient is estimated down to approximately 1400 m TVD RKB where an increase starts and continues through the Hordaland Group. The highest pore pressure is assumed at 2000 m TVD RKB, in the Balder Formation, with a gradient of 1.20 g/cm3. A decrease of the gradient is calculated through the Sele and Lista formations. A low gradient is assumed through the Ekofisk Formation, and a slight increase is assumed in the Cromer Knoll shale sequence. At the top of the Upper Jurassic/Skagerrak sandstone a pore pressure gradient of 1.16 g/cm3 is estimated in the water filled reservoir. At TD a pore pressure of 1.14 g/cm3 is assumed. No pressure points were conducted so the pore pressure in the reservoir is based on prognosis.

The well was permanently plugged and abandoned on 19 January 2003 as a dry well.

Testing

No drill stem test was performed.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
460.00	2900.00

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	2827.0	2829.9	[m]

Total core sample length [m]	2.9
Cores available for sampling?	YES

Core photos

2827-2829m

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
103	NORDLAND GP
851	UTSIRA FM
1046	HORDALAND GP
1170	SKADE FM
1182	NO FORMAL NAME
2224	ROGALAND GP
2224	BALDER FM
2298	SELE FM
2360	LISTA FM

2458	VÅLE FM
2474	SHETLAND GP
2474	EKOFISK FM
2484	TOR FM
2687	HOD FM
2765	BLODØKS FM
2778	SVARTE FM
2787	CROMER KNOLL GP
2787	RØDBY FM
2809	SOLA FM
2813	ÅSGARD FM
2818	VIKING GP
2818	DRAUPNE FM
2821	HEATHER FM
2825	VESTLAND GP
2825	HUGIN FM
2856	NO GROUP DEFINED
2856	SKAGERRAK FM

Composite logs

Document name	Document format	Document size [MB]
4612	pdf	0.51

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

Document name	Document format	Document size [MB]
4612_16_7_8_S_COMPLETION_LOG	.pdf	6.39
4612_16_7_8_S_COMPLETION_REPORT	.pdf	4.12

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
SURF.COND.	30	149.0	36	150.0	0.00	LOT
INTERM.	13 3/8	442.0	17 1/2	444.0	1.51	LOT
INTERM.	9 7/8	1316.0	12 1/4	1317.0	1.58	LOT

OPEN HOLE		2900.0	8 1/2	2900.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
805	1.13	12.0		GLYDRIL 10	
1319	1.18	12.0		GLYDRIL 10	
1492	1.42	38.0		VERSAVERT 41	
2143	1.45	34.0		VERSAVERT 41	
2605	1.45	31.0		VERSAVERT 41	
2801	1.45	36.0		VERSAVERT 41	
2827	1.45	36.0		VERSAVERT 41	
2875	1.45	33.0		VERSAVERT 41	
2900	1.45	34.0		VERSAVERT 41	