General information

Wellbore name	16/10-2
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Well name	16/10-2
Seismic location	NA85 - 6 & SP. 910
Production licence	101
Drilling operator	Norsk Agip AS
Drill permit	685-L
Drilling facility	BYFORD DOLPHIN
Drilling days	43
Entered date	20.06.1991
Completed date	01.08.1991
Release date	01.08.1993
Publication date	27.02.2004
Purpose - planned	WILDCAT
Reentry	NO
Content	DRY
Discovery wellbore	NO
Kelly bushing elevation [m]	25.0
Water depth [m]	79.0
Total depth (MD) [m RKB]	3150.0
Final vertical depth (TVD) [m RKB]	3148.0
Maximum inclination [°]	4.6
Bottom hole temperature [°C]	117
Oldest penetrated age	TRIASSIC
Oldest penetrated formation	SKAGERRAK FM
Geodetic datum	ED50
NS degrees	58° 8' 26.58'' N
EW degrees	2° 2' 14.91'' E
NS UTM [m]	6444927.85
EW UTM [m]	443327.64
UTM zone	31
NPDID wellbore	1767

Wellbore history

General

Block 16/10 is located in a structurally complex area between the Viking Graben, the Central Graben, the Witch Ground Graben and the Ling Graben. Well 16/10-2 is the second well drilled in block 16/10 PL 101 operated by Norsk Agip; the first one 16/10-1 was drilled May-July 1986. The purpose of the well was to test the hydrocarbon potential of the "Delta" structure located in the west part of 16/10 block. This structure is a tilted fault block elongated north-south bounded to the west by a north-south trending normal fault, and dip-closing to the north, east and south. It was interpreted as the largest structure in block 16/10 in terms of possible oil reserves. The structure is not salt-induced and being one of the oldest in this area it was also considered prospective for possible early migration. The Upper Jurassic and the Lower Cretaceous shales constituted the seal rocks for the geological model. The main and the secondary targets were respectively the "Oxfordian Sandstones" (Upper Jurassic) and the Triassic sandstones of the Skagerrak Formation that had been found hydrocarbon bearing in the nearby blocks in wells 6/3-1, 15/12-5, 15/12-4, 15/12-8, 15/12-6 and 16/7-4.

Operations and results

Exploration well 16/10-2 was spudded with the semi-submersible installation Byford Dolphin on 20 June 1991 and drilled to a total depth of 3150 m in the Triassic sandstones of the Skagerrak Formation. The well was drilled with seawater and gel down to 417 m, with Seawater and gypsum polymer from 417 m to 2798 m and with Bentonite/Anco Temp mud from 2798 m to TD.

The Quaternary/Tertiary sequence constituted predominantly marine claystones of the Nordland, Hordaland and Rogaland Groups. The Cretaceous sequence was mainly represented by limestones of the Chalk Group and by the reddish claystones and calcareous marls of the Cromer Knoll Group that overlay the Base Cretaceous Unconformity found at 2818 m. The Upper Jurassic sequence consisted of 35 m darkish/brown shales belonging to the Draupne Formation overlying 70 m of the "Oxfordian Sandstones" (Hugin Formation). This reservoir showed a larger sand development than in 16/10-1 well where only 33 m sand was encountered. The top of the "Oxfordian Sandstones" was encountered at 2853 m. Below the sand, from 2923 m to TD, Triassic continental sandstones of the Skagerrak Formation were encountered. The geological results of 16/10-2 well were in good agreement with the structural and stratigraphic models expected. The targets (i.e. Oxfordian Sandstone and Skagerrak Fm.) were found water bearing and no hydrocarbon bearing level or relevant shows were encountered in the well. Conventional cores were not taken. A RFT segregated sample at 2876 m recovered only water and mud filtrate.

The well was permanently abandoned as a dry well on 1 August 1991.

Testing

No drill stem test was performed

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
420.00	3150.00

Cuttings available for sampling?	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
104	NORDLAND GP
985	UTSIRA FM
987	UNDIFFERENTIATED
1271	HORDALAND GP
2172	ROGALAND GP
2172	BALDER FM
2196	SELE FM
2251	LISTA FM
2317	VÅLE FM
2335	SHETLAND GP
2335	EKOFISK FM
2371	TOR FM
2523	HOD FM
2698	BLODØKS FM
2716	SVARTE FM
2778	CROMER KNOLL GP
2778	SOLA FM
2790	ÅSGARD FM
2818	VIKING GP
2818	DRAUPNE FM
2853	VESTLAND GP
2853	HUGIN FM
2923	NO GROUP DEFINED
2923	SKAGERRAK FM

Composite logs

Document name	Document format	Document size [MB]
1767	pdf	0.35

Geochemical information

Document name	Document format	Document size [MB]
1767_1	pdf	2.48

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

Document name	Document format	Document size [MB]
1767_01_WDSS_General_Information	pdf	0.50
1767_02_WDSS_completion_log	pdf	0.18

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

Document name	Document format	Document size [MB]
1767_16_10_2_COMPLETION_REPORT_AND_LOG	pdf	53.73

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL VDL GR	100	1396
CBL VDL GR	950	2777
CST	2780	3142
DIL BHC GR	104	161
DIL SLS GR	407	1315
DITE SLS GR	1396	2798
DITE SLS GR	2777	3150
GR	104	161
LDT CNL NGS	2777	3150
MWD - GR RES DIR	407	1405
MWD - GR RES DIR	1396	2798
MWD - GR RES DIR	2777	3150
RFT	2803	3120
SHDT GR	1396	2798
SHDT GR	2777	3150
VSP	400	3150

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	161.0	36	163.0	0.00	LOT
INTERM.	20	407.0	26	417.0	1.64	LOT
INTERM.	13 3/8	1397.0	17 1/2	1405.0	1.80	LOT
INTERM.	9 5/8	2777.0	12 1/4	2798.0	1.86	LOT
OPEN HOLE		3150.0	8 1/2	3150.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
161	1.05			WATER BASED	21.06.1991
275	1.05			WATER BASED	24.06.1991
417	1.04			WATER BASED	24.06.1991
417	1.09			WATER BASED	24.06.1991
417	1.05	13.0	7.5	WATER BASED	27.06.1991
628	1.12	12.0	5.0	WATER BASED	27.06.1991
896	1.18	15.0	6.0	WATER BASED	28.06.1991
920	1.19	15.0	5.0	WATER BASED	01.07.1991
920	1.19	15.0	5.0	WATER BASED	29.06.1993
1033	1.22	15.0	5.0	WATER BASED	29.06.1993
1033	1.22	15.0	5.0	WATER BASED	01.07.1991
1100	1.22	16.0	4.5	WATER BASED	01.07.1991
1100	1.22	16.0	4.5	WATER BASED	29.06.1993
1277	1.22	13.0	4.0	WATER BASED	01.07.1991
1307	1.24	17.0	5.0	WATER BASED	01.07.1991
1405	1.25	17.0	6.0	WATER BASED	01.07.1991
1405	1.25	19.0	6.0	WATER BASED	01.07.1991
1405	1.25	18.0	4.0	WATER BASED	02.07.1991
1405	1.25	16.0	4.0	WATER BASED	03.07.1991
1498	1.32	12.0	3.0	DUMMY	04.07.1991
1513	1.40	17.0	6.0	DUMMY	04.07.1991
1826	1.40	21.0	8.0	DUMMY	05.07.1991
1850	1.40	18.0	5.5	DUMMY	08.07.1991
2050	1.40	17.0	5.0	DUMMY	08.07.1991
2176	1.40	27.0	6.0	DUMMY	08.07.1991
2430	1.50	29.5	6.5	DUMMY	08.07.1991

2438	1.50	22.0	5.0	DUMMY	09.07.1991
2459	1.55	27.0	7.0	DUMMY	10.07.1991
2459	1.55	26.0	5.0	DUMMY	11.07.1991
2524	1.55	22.0	5.0	DUMMY	15.07.1991
2533	1.55	53.0	4.0	DUMMY	15.07.1991
2585	1.55	26.0	6.0	DUMMY	15.07.1991
2651	1.55	27.0	6.0	DUMMY	15.07.1991
2699	1.55	29.0	7.0	WATHER BASED	16.07.1991
2708	1.55	27.0	6.0	WATHER BASED	17.07.1991
2756	1.55	32.0	8.0	WATHER BASED	18.07.1991
2780	1.55	29.0	6.0	WATHER BASED	19.07.1991
2798	1.55	28.0	6.5	WATHER BASED	22.07.1991
2798	1.55	28.0	6.0	WATHER BASED	22.07.1991
2798	1.55	27.0	7.0	WATHER BASED	22.07.1991
2798	1.55	27.0	7.0	WATHER BASED	23.07.1991
2798	1.30	14.0	3.0	WATHER BASED	24.07.1991
2841	1.31	15.0	6.5	WATHER BASED	25.07.1991
2953	1.30	20.0	6.0	WATHER BASED	26.07.1991
3150	1.31	27.0	7.0	WATHER BASED	29.07.1991
3150	1.30	23.0	6.5	WATHER BASED	29.07.1991

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]
1767_Formation_pressure_(Formasjonstrykk)	pdf	0.21