General information

Wellbore name	33/5-1
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Well name	33/5-1
Seismic location	line 754-305 & Sp 228
Production licence	047
Drilling operator	Norsk Hydro Produksjon AS
Drill permit	218-L
Drilling facility	TREASURE SEEKER
Drilling days	92
Entered date	19.07.1979
Completed date	18.10.1979
Release date	18.10.1981
Publication date	18.05.2004
Purpose - planned	WILDCAT
Reentry	NO
Content	SHOWS
Discovery wellbore	NO
Kelly bushing elevation [m]	25.0
Water depth [m]	339.5
Total depth (MD) [m RKB]	3829.0
Final vertical depth (TVD) [m RKB]	3822.0
Maximum inclination [°]	7.2
Oldest penetrated age	EARLY TRIASSIC
Oldest penetrated formation	TEIST FM (INFORMAL)
Geodetic datum	ED50
NS degrees	61° 44' 46.1'' N
EW degrees	1° 34' 57.4'' E
NS UTM [m]	6846879.89
EW UTM [m]	425144.48
UTM zone	31
NPDID wellbore	103

Wellbore history

General

The objective of the well, located on the Makrell horst on the northern margin of the East Shetland Basin, was to test two possible sandstone reservoirs of Triassic and Permo-Triassic age respectively. The first of these reservoirs was prognosed to be an Early Triassic massive sandstone reservoir. Correlation with the U.K. well 211/13-1 indicated that this sandstone could be divided into two main sequences both with increasing silt and clay content in the lower parts. These sands were thought to be deposited in a braided alluvial system. The second was prognosed to be Permo-Triassic fluvial sandstone similar to the higher reservoir but separated from it by lacustrine or lagoonal shales, marls and limestones. The well was planned to reach total depth below a seismic marker at approximately 3825 m.

Well 33/5-1 is reference well for the Triassic Teist and Lomvi Formations.

Operations and results

Wildcat well 33/5-1 was spudded with the semi-submersible installation Treasure Seeker on 19 July 1979 and drilled to TD at 3829 m in the Early Triassic Teist Formation, interpreted to be close to the seismic "A" marker. A gas leakage from a shallow gas zone at 480 m to 490 m between the 20" and 30" casing was observed sporadically throughout drilling of the well. The leakage was stopped when the gas zone were squeezed off with cement during abandonment of the well. An 18 1/2" hole was first drilled to 1516 m. When pulling out of the hole the string got stuck at 1226 m and the well was sidetracked from 1019 m to 1071 m. Logs are from the sidetrack. Further drilling went without significant problems. The well was drilled with seawater/bentonite/CMC down to 1540 m. Diesel and lubricants were added to the mud when attempting to free the stuck pipe. A lignosulfonite/lignite mud was used from 1540 m to TD.

A sequence of interbedded limestones of Early Tertiary to Late Cretaceous age (Late/Middle Paleocene-Maastrichtian) revealed fair hydrocarbon shows when penetrated. Wire line log interpretations and RFT runs found, however, these limestones to be poor reservoir rocks and to contain residual hydrocarbons only. The Jurassic was absent in the well. Early Cretaceous sediments (Albian age Rødby Formation) were found resting unconformably on the Triassic Lunde Formation. Well 33/5-1 penetrated a 1137 m thick sequence of Triassic rocks. Good sandstone reservoirs were found, but no significant hydrocarbon shows were encountered. A single conventional core was cut from 3066 m to 3076.4 m in the Lunde Formation. Four RFT runs were made for pressure recordings and evaluation of the Lower Tertiary-Upper Cretaceous limestones and the Triassic sandstones. For the Lower Tertiary-Upper Cretaceous sequence, no reliable data were obtained due to tight formations or tool seal failure. The RFT recordings for the Triassic sandstones gave a pressure gradient of 0.11 bar/m (0.48 psi/ft) indicating water-bearing reservoir. Only mud filtrate was recovered from RFT samples taken at 1675 m and 2747.5 m.

The well was permanently abandoned as dry on 18 October 1979.

Testing

No drill stem test was performed

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
427.00	3822.00

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	3066.0	3076.5	[m]

Total core sample length [m]	10.5
Cores available for sampling?	YES

Core photos


3066-3068m


3068-3071m


3071-3074m


3074-3076m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
1000.0	[m]	DC	GEOCH
1030.0	[m]	DC	GEOCH
1060.0	[m]	DC	GEOCH
1090.0	[m]	DC	GEOCH
1120.0	[m]	DC	GEOCH
1150.0	[m]	DC	GEOCH
1180.0	[m]	DC	GEOCH
1210.0	[m]	DC	GEOCH
1240.0	[m]	DC	GEOCH
1270.0	[m]	DC	GEOCH
1300.0	[m]	DC	GEOCH

1330.0	[m]	DC	GEOCH
1360.0	[m]	DC	GEOCH
1390.0	[m]	DC	GEOCH
1420.0	[m]	DC	GEOCH
1450.0	[m]	DC	GEOCH
1480.0	[m]	DC	GEOCH
1510.0	[m]	DC	GEOCH
1540.0	[m]	DC	GEOCH
1570.0	[m]	DC	GEOCH
1600.0	[m]	DC	GEOCH
1630.0	[m]	DC	GEOCH
1630.0	[m]	DC	RRI
1650.0	[m]	DC	RRI
1660.0	[m]	DC	GEOCH
1670.0	[m]	DC	RRI
1690.0	[m]	DC	GEOCH
1690.0	[m]	DC	RRI
1710.0	[m]	DC	RRI
1730.0	[m]	DC	RRI
1750.0	[m]	DC	RRI
1770.0	[m]	DC	RRI
1790.0	[m]	DC	RRI
1815.0	[m]	DC	RRI
1830.0	[m]	DC	RRI
1850.0	[m]	DC	RRI
1875.0	[m]	DC	RRI
1890.0	[m]	DC	RRI
1910.0	[m]	DC	RRI
1930.0	[m]	DC	RRI
1945.0	[m]	DC	RRI
1965.0	[m]	DC	RRI
1985.0	[m]	DC	RRI
2005.0	[m]	DC	RRI
2025.0	[m]	DC	RRI
2040.0	[m]	DC	RRI
2060.0	[m]	DC	RRI
2080.0	[m]	DC	RRI
2100.0	[m]	DC	RRI
2120.0	[m]	DC	RRI
2142.0	[m]	DC	RRI

2162.0	[m]	DC	RRI
2180.0	[m]	DC	RRI
2200.0	[m]	DC	RRI
2220.0	[m]	DC	RRI
2240.0	[m]	DC	RRI
2260.0	[m]	DC	RRI
2280.0	[m]	DC	RRI
2302.0	[m]	DC	RRI
2320.0	[m]	DC	RRI
2342.0	[m]	DC	RRI
2360.0	[m]	DC	RRI
2380.0	[m]	DC	RRI
2400.0	[m]	DC	RRI
2418.0	[m]	DC	RRI
2440.0	[m]	DC	RRI
2460.0	[m]	DC	RRI
2480.0	[m]	DC	RRI
2500.0	[m]	DC	RRI
2520.0	[m]	DC	RRI
2542.0	[m]	DC	RRI
2560.0	[m]	DC	RRI
2578.0	[m]	DC	RRI
2600.0	[m]	DC	RRI
2620.0	[m]	DC	RRI
2640.0	[m]	DC	RRI
2670.0	[m]	DC	RRI
2690.0	[m]	DC	RRI
2710.0	[m]	DC	RRI

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
365	NORDLAND GP
1064	HORDALAND GP
1495	ROGALAND GP
1495	BALDER FM
1565	LISTA FM
1630	VÅLE FM
1650	SHETLAND GP

1650	JORSALFARE FM
2054	KYRRE FM
2650	TRYGGVASON FM
2672	CROMER KNOLL GP
2672	RØDBY FM
2692	HEGRE GP
2692	LUNDE FM
3220	LOMVI FM
3298	TEIST FM

Composite logs

Document name	Document format	Document size [MB]
103	pdf	0.53

Geochemical information

Document name	Document format	Document size [MB]
103_1	pdf	7.74
103_2	pdf	0.67
103_3	pdf	0.93

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

Document name	Document format	Document size [MB]
103_01_WDSS_General_Information	pdf	0.12
103_02_WDSS_completion_log	pdf	0.23

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

Document name	Document format	Document size [MB]
103_1_Completion_Report_&_Completion_log	pdf	13.57

Logs

Log type	Log top depth [m]	Log bottom depth [m]
BHG	426	587
BHG	582	650
CBL VDL	364	1527
CST	1619	2606
CST	1619	2606
CST	2616	2900
CST	2623	3008
CST	2738	3376
CST	3399	3829
DLL MSFL GR	1527	1781
FDC CNL GR	1527	1780
FDC CNL GR	2599	3829
FDC GR	582	1538
FDC GR	1720	2614
HDT	1531	2556
HDT	2601	3826
ISF SONIC GR	426	3829
RFT	1636	1675
RFT	1648	1703
RFT	2747	2858
RFT	2878	3244
TEMPERATURE	290	2566
VSP	427	2608
VSP	1200	3700

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	427.0	36	427.0	0.00	LOT
SURF.COND.	20	583.0	26	590.0	1.22	LOT
INTERM.	16	858.0	22	875.0	1.31	LOT
INTERM.	13 3/8	1526.0	18 1/2	1540.0	1.61	LOT
INTERM.	9 5/8	2599.0	12 1/4	2614.0	0.00	LOT
OPEN HOLE		3829.0	8 1/2	3829.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
685	1.30	57.0		spud mud	
874	1.32	54.0		water mud	
1470	1.13	55.0		water mud	
2613	1.50	54.0		water mud	
3823	1.56	66.0		water mud	