General information

Wellbore name	7/9-1
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Well name	7/9-1
Seismic location	LINE N 7-3. SP.42
Production licence	020
Drilling operator	Conoco Norway Inc.
Drill permit	54-L
Drilling facility	MÆRSK EXPLORER
Drilling days	38
Entered date	22.04.1971
Completed date	29.05.1971
Release date	29.05.1973
Publication date	24.09.2004
Purpose - planned	WILDCAT
Reentry	NO
Content	DRY
Discovery wellbore	NO
Kelly bushing elevation [m]	31.0
Water depth [m]	70.0
Total depth (MD) [m RKB]	2931.0
Maximum inclination [°]	5.5
Bottom hole temperature [°C]	113
Oldest penetrated age	LATE PERMIAN
Oldest penetrated formation	ZECHSTEIN GP
Geodetic datum	ED50
NS degrees	57° 20' 37.1'' N
EW degrees	2° 51' 21.4'' E
NS UTM [m]	6355791.53
EW UTM [m]	491329.32
UTM zone	31
NPDID wellbore	191

Wellbore history

General

Well 7/9-1 is located on the Reke Fault Zone between the Jæren High and the Sørvestlandet High. The objective of the well was to test for hydrocarbons in Tertiary, Cretaceous, Jurassic, and Triassic reservoirs over a Zechstein salt well which showed 1300 feet of vertical closure over an area of about 65 square km at the base Tertiary level.

The well is Reference Well for the Gassum and Fjerritslev formations.

Operations and results

Wildcat well 7/9-1 was spudded with the jack-up installation Mærsk Explorer on 22 April 1970 and drilled to TD at 2931 m in Zechstein salt. The well was spudded using a high viscosity gel-seawater mud. After drilling out of the 20" casing, which stuck at 242 m, the mud was converted to a lignosulphonate-seawater. The 213 m of 26" rat hole left below the 20" casing gave considerable trouble by acting as a build up area for large balls of gumbo, which collected there as 17 1/2" hole was being made. An attempt to run electric logs at the 13 3/8" casing point failed because of the fill at 442 m. Drilling detergent was used to reduce torque and drag and was successful in the upper part of the hole. The diesel oil content of the mud was maintained between 4% and 7%. A deviation problem arose in the 8 1/2" hole, starting around 2255 m where the angle was 4.5°. It increased steadily and at 2723 m the last survey point was 5.5°. Light bit weight, high rotary speeds, and a bottom hole assembly usually successful in dropping angle had no effect.

The Tertiary Paleocene Sands were not developed over the structure. The other objectives, the Tertiary Danian calceranites, the late Cretaceous Maastrichtian chalk, and the Middle Jurassic to Triassic sandstones, were confirmed, but were water bearing. During the drilling of the Tertiary section to a depth of 1676 m shale gas from the sometimes richly organic shales maintained a high background between 0.5% and 1% methane in the mud with maximum values of 2.5% recorded between 503 m and 594 m. Below 1676 m background readings were generally below 0.1% methane to the base of the Tertiary shale section. The upper Jurassic shales between 2454 m and 2484 m also gave indications up to 0.1% methane. Apart from the shale gas recorded no shows were encountered in any of the porous sections. Organic geochemical analyses showed that the vitrinite in the well was immature to TD (%Ro only up to 0.5), while the maturity based on spore coloration indicated mature kerogen below ca 2000 m. Relatively high TOC was measured in Cretaceous "grey shales", in the Jurassic, and possibly in the Zechstein Group. However, the data appear highly affected by cavings, and from picked lithologies only the Late Jurassic Mandal Formation appeared to be a reliable source rock. It had TOC around 4% and Hydrogen Index around 250 mg HC /g rock.

Two conventional cores were cut in the well and both jammed off. The first retrieved 4.7 m chalky limestone of Danian age (Ekofisk Formation) from the interval 2209.5 m to 2216.8 m. The second core retrieved 3 m of Maastrichtian chalk (Tor Formation) from the interval 2256.4 m to 2260.4 m. No fluid sample was taken.

The well was plugged and abandoned as a dry hole on 29 May 1971.

Testing

No drill stem test was performed

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
102.10	2930.35

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	7249.0	7264.5	[ft]
2	7403.0	7413.0	[ft]

Total core sample length [m]	7.8
Cores available for sampling?	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
101	NORDLAND GP
1088	HORDALAND GP
2079	ROGALAND GP
2079	BALDER FM
2088	SELE FM
2148	LISTA FM
2180	VÅLE FM
2207	SHETLAND GP
2207	EKOFISK FM
2254	TOR FM
2335	HOD FM
2378	CROMER KNOLL GP
2382	SOLA FM
2406	ÅSGARD FM
2453	TYNE GP
2453	MANDAL FM
2487	VESTLAND GP
2487	ULA FM
2495	BRYNE FM
2524	NO GROUP DEFINED
2524	FJERRITSLEV FM

2601	GASSUM FM
2609	NO GROUP DEFINED
2609	SKAGERRAK FM
2811	ZECHSTEIN GP

Composite logs

Document name	Document format	Document size [MB]
191	pdf	0.29

Geochemical information

Document name	Document format	Document size [MB]
191_1	pdf	0.34
191_2_prelim_results_geochemical_studies_of_conoco_pelican_gulf_7_9_1_well	pdf	0.69
191_3_Preliminary_Results_of_Petroleum_Geochemical_Studies	pdf	0.36

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

Document name	Document format	Document size [MB]
191_01_WDSS_General_Information	pdf	0.16

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

Document name	Document format	Document size [MB]
191_1_Final_Report_Drilling_Operations	pdf	0.71
191_2_Completion_Report	pdf	3.81
191_3_Palynological_Analysis_of_the_Jurassic_8000-8400feet	pdf	0.15
191_4_Supplementary_Repor_on_the_Palynology_Interval_8400-8600	pdf	0.30

Documents - Norwegian Offshore Directorate papers

Document name	Document format	Document size [MB]
191_01_NPD_Paper_No.31_Lithology__Norwegian_Danish_Basin__Well_7_9_1	pdf	33.18
191_02_NPD_Paper_No.31_Correlation_chart_1__Well_7_9_1	pdf	0.49
191_03_NPD_Paper_No.31_Correlation_chart_1_II__Well_7_9_1	pdf	0.35

Logs

Log type	Log top depth [m]	Log bottom depth [m]
BHC GR	91	2149
BHC SONIC	1070	2149
BHC SONIC GR	2145	2927
DIP	2144	2930
FDC GR	2327	2930
IEL SP	1070	2914
MLL	2143	2928
SWC	2209	2260
VSP	91	2930

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	108.0	36	110.0	0.00	LOT
SURF.COND.	20	241.0	26	244.0	0.00	LOT
INTERM.	13 3/8	1070.0	17 1/2	1076.0	0.00	LOT
INTERM.	9 5/8	2143.0	12 1/4	2144.0	0.00	LOT
OPEN HOLE		2931.0	8 1/2	2931.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
457	1.19	42.0		seawater	
717	1.17	45.0		seawater	

1070	1.43	50.0		seawater	
1563	1.54	55.0		seawater	
2046	1.56	52.0		seawater	
2405	1.67	46.0		seawater	
2930	1.68	53.0		seawater	