General information

Wellbore name	25/2-1
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	ØST FRIGG
Discovery	25/2-1 Øst Frigg
Well name	25/2-1
Seismic location	LINE 71223 SP 260
Production licence	026
Drilling operator	Elf Petroleum Norge AS
Drill permit	90-L
Drilling facility	NEPTUNE 7
Drilling days	49
Entered date	04.08.1973
Completed date	21.09.1973
Release date	21.09.1975
Publication date	29.06.2004
Purpose - planned	WILDCAT
Reentry	NO
Content	GAS
Discovery wellbore	YES
1st level with HC, age	EOCENE
1st level with HC, formation	FRIGG FM
Kelly bushing elevation [m]	24.0
Water depth [m]	104.0
Total depth (MD) [m RKB]	2740.0
Bottom hole temperature [°C]	88
Oldest penetrated age	LATE CRETACEOUS
Oldest penetrated formation	HARDRÅDE FM
Geodetic datum	ED50
NS degrees	59° 55' 30.2'' N
EW degrees	2° 23' 2'' E
NS UTM [m]	6643380.27
EW UTM [m]	465555.66
UTM zone	31
NPDID wellbore	353

Wellbore history

General

The 25/2-1 well was drilled on the top of the eastern structure on the WSW-ENE trend of the Frigg Field. The objective of this well was the lower tertiary sands, especially Eocene, which are equivalent to the gas - bearing sand section in the western Frigg wells. Their thickness range around 100 m according to the seismic. Sandy interbeds in the upper part of the cretaceous chalk were considered secondary objective.

Operations and results

Well 25/2-1 was spudded with the semi-submersible installation Neptune 7 on 4 August 1973 and drilled to TD at 2740 m in the Late Cretaceous Hardråde Formation.

Top Frigg sand was found at 1915 m, only 8 meters above the average seismic estimate. As expected, the Frigg sand body was found underlying the Eocene green and brown-red shales. The net sands are 88 m thick with excellent reservoir qualities (30 % to 24 % on the cores). The top of the reservoir stands 7 m deeper than in well 25/1-1. The net pay zone in the Frigg Formation includes 56 m of gas bearing and seven m of oil bearing sand. The gas/oil interface at 1971 m was found exactly at the same depth as in the Frigg Field. Two wire-line tests were performed in the gas-zone at 1973 m and 1974 m. The second of these was plugged by sand. A Third wire line test in the transition zone at 1985 m produced some oil with 70% salt water (35 g/l). Paleocene reservoirs below Frigg were of very good quality too, but all Sands below the Frigg Formation were found water wet.á Only very weak shows were recorded in the Paleocene (Hermod Formation), the Danian (Ty Formation) and Maastrichtian (HardrÕde Formation). Two cores were cut in the Frigg Formation, the first in the interval 1950 m to 1968 m, and the second in the interval 1973 m to 1991 m.

Testing

An open hole test was carried out from 1926 to 1938 m Just after setting the 9" 5/8 casing at 1907 m in order to check a new type of sand screen to be used in further development wells. The test produced 638000 Sm3 gas and minor condensate/day through a 3/4" choke. Produced GOR was 157000 Sm3/Sm3 with a stock tank liquid density of 0.84 g/cm3.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
470.00	2740.00

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	1950.0	1966.3	[m]

2	1984.2	1991.0	[m]

Total core sample length [m]	23.1
Cores available for sampling?	NO

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
1840.0	[m]	DC	
1860.0	[m]	DC	
1870.0	[m]	DC	
1880.0	[m]	DC	
1890.0	[m]	DC	
1900.0	[m]	DC	
1927.0	[m]	DC	
2005.0	[m]	DC	
2025.0	[m]	DC	
2045.0	[m]	DC	
2065.0	[m]	DC	
2080.0	[m]	DC	
2100.0	[m]	DC	
2120.0	[m]	DC	
2140.0	[m]	DC	
2165.0	[m]	DC	
2185.0	[m]	DC	
2205.0	[m]	DC	
2225.0	[m]	DC	
2245.0	[m]	DC	
2265.0	[m]	DC	
2285.0	[m]	DC	
2305.0	[m]	DC	
2325.0	[m]	DC	
2355.0	[m]	DC	
2375.0	[m]	DC	
2395.0	[m]	DC	
2415.0	[m]	DC	
2435.0	[m]	DC	
2455.0	[m]	DC	
2475.0	[m]	DC	

2495.0	[m]	DC	
2515.0	[m]	DC	
2535.0	[m]	DC	
2545.0	[m]	DC	

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
127	NORDLAND GP
411	UTSIRA FM
1021	HORDALAND GP
1085	SKADE FM
1089	NO FORMAL NAME
1424	GRID FM
1442	NO FORMAL NAME
1915	FRIGG FM
2003	NO FORMAL NAME
2035	ROGALAND GP
2035	INTRA BALDER FM SS
2146	BALDER FM
2188	HERMOD FM
2360	LISTA FM
2385	VÅLE FM
2538	TY FM
2552	VÅLE FM
2557	TY FM
2653	SHETLAND GP
2653	HARDRÅDE FM

Composite logs

Document name	Document format	Document size [MB]
353	pdf	0.30

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

Document name	Document format	Document size [MB]
353_01_WDSS_General_Information	pdf	0.26

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

Document name	Document format	Document size [MB]
353_10_Sedimentological_study_of_the_base_of_the_tertiary	pdf	2.80
353_11_Sidewall_cores_description	pdf	1.58
353_12_Thermodynamic_study_and_physical_properties	pdf	4.52
353_1_Completion_Report_&_Completion_log	pdf	3.55
353_2_Geological_report	PDF	8.54
353_3_Analyse_des_gas_preleves	pdf	0.51
353_4_Core_description	pdf	0.35
353_5_Fit_puits	pdf	3.51
353_6_Mesures_petrophysical_sur_les_carottes_du_puits	pdf	0.33
353_7_Palynological_study_on_lower_tertiary	pdf	0.98
353_8_Rapport_chronologique_des_operations_realisees_du_24	pdf	1.53
353_9_Results_des_essai_sur_le_reservoir_a_gas_eocene	pdf	1.20

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	1926	1938	19.0

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0		19.600		

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	4	637975		0.840	157000

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL	400	1904
CNL GR	1904	1945
DLL	1904	2737
FDC CNL GR	1904	2737
HDT	1904	2737
IES	448	1909
IES	1904	1945
ML MLL	1904	2737
SL GR	448	1909
SL GR	1904	2737
SWC	1908	2455
SWC	2223	2730
VSP	500	2720

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	162.0	36	164.0	0.00	LOT
INTERM.	13 3/8	448.0	17 1/2	460.0	0.00	LOT
INTERM.	9 5/8	1907.0	12 1/4	1913.0	0.00	LOT
OPEN HOLE		2740.0	8 1/2	2740.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
460	1.05	120.0		water based	
826	1.29	59.0	10.0	water based	
1913	1.23	50.0	17.0	water based	
1950	1.24	47.0	12.0	water based	
2528	1.26	52.0	10.0	water based	

Thin sections at the Norwegian Offshore Directorate

Depth	Unit
1952.00	[m]

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]
353_Formation_pressure_(Formasjonstrykk)	pdf	0.21