



General information





Wellbore name	24/9-5
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	VOLUND
Discovery	24/9-5 Volund
Well name	24/9-5
Seismic location	FI 89 3D INLINE 1070 & CROSSLINE 2792
Production licence	150
Drilling operator	Fina Production Licenses AS
Drill permit	778-L
Drilling facility	WEST DELTA
Drilling days	51
Entered date	07.12.1993
Completed date	26.01.1994
Release date	26.01.1996
Publication date	15.02.2006
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	YES
1st level with HC, age	EOCENE
1st level with HC, formation	INTRA BALDER FM SS
Kelly bushing elevation [m]	29.0
Water depth [m]	122.0
Total depth (MD) [m RKB]	2860.0
Maximum inclination [°]	5.9
Bottom hole temperature [°C]	88
Oldest penetrated age	LATE CRETACEOUS
Oldest penetrated formation	JORSALFARE FM
Geodetic datum	ED50
NS degrees	59° 29' 6.52" N
EW degrees	1° 55' 10.82" E
NS UTM [m]	6594725.25
EW UTM [m]	438806.71
UTM zone	31
NPDID wellbore	2244



Wellbore history

General

Wildcat well 24/9-5 was drilled in a location SW of the Heimdal field, ca 5 km from the UK border. It was programmed to test two primary sandstone prospects in the Late Paleocene. The lower objective was the Hermod Formation and the upper objective was sandstones within the Balder Formation. The Hermod Formation prospect was a mapped isochron thick with a small area of structural closure at Top Sele Formation. The Balder Formation prospect was mapped as an isochron thick with an associated seismic amplitude anomaly and was primarily regarded as a stratigraphic trap.

Operations and results

Wildcat well 24/9-5 was spudded with the semi-submersible installation West Delta on 7 December 1993 and drilled to TD at 2860 m in the Late Cretaceous Jorsalfare Formation. No significant problem was reported from the operations. The well was drilled with seawater down to 581 m, with KCl/PAC/PHPA from 581 m to 1941 m, and with KCl/PAC/PHPA/glycol from 1941 m to TD.

The Balder Formation was encountered at 1964 m. A gross oil bearing Intra Balder Formation sandstone interval of 7.1 m was encountered at 2011 m. Net sandstone was 6.3 m of which 5.9 m was in a single massive unit. Petrophysical analysis gave porosities of 35 - 40% in the massive sandstone unit with an average SW of 22.2%. Base of the reservoir was encountered at 2018 m, which was found to be an oil-down-to water contact. Samples from the FMT tool indicated the reservoir fluid to consist of 32-34 deg API oil with a GOR of 91 Sm³/Sm³. Pressure gradient analysis gave a free water level at 2031.5 m (2028.0 m TVD). Geochemical analysis of the oil sample indicated minor biodegradation had taken place. The Sele Formation was encountered at 2031 m with 47 m net sandstone in two Hermod Formation sequences. The upper sequence was encountered at 2049 m and the lower at 2098 m. These sandstones proved to be water bearing with no shows. A thin sandstone at 2045.5 - 2047 m, just above the upper Hermod interval, gave the highest known water below the Balder Formation pay interval. An additional zone of interest was encountered in the interval 1775-1790 m where a number of siltstone/argillaceous sandstone stringers were identified. Minor gas shows were observed and rare traces of sandstone gave poor (residual?) oil shows. Log analysis showed the presence of hydrocarbons in thin argillaceous stringers particularly over the interval 1785-1787.5 m where neutron density logs (acquired through casing) indicated the presence of gas (Average SW = 40%).

Four conventional cores were cut. Three were cut in the Late Palaeocene Balder Formation with 7 m Intra Balder Formation sandstone. The fourth was cut in the Hermod Formation Sandstone within the Sele Formation. Three FMT samples were taken in the well, one at 2013.5 m (oil) and two at 2017.5 m (mud filtrate)

Although the hydrocarbon-bearing interval in the Balder Formation was as prognosis it was recognised that the well was not in an optimum location and it was decided to drill an immediate appraisal well. Well 24/9-5 was therefore not tested.

The well was permanently abandoned on 26 January 1994 as an oil discovery.

Testing

No drill stem test was performed in the well.

**Cuttings at the Norwegian Offshore Directorate**

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
590.00	2860.00

Cuttings available for sampling?	YES
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Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	2000.0	2001.8	[m]
2	2002.5	2019.9	[m]
3	2020.3	2033.1	[m]
4	2048.3	2052.8	[m]

Total core sample length [m]	36.5
Cores available for sampling?	YES

Core photos

2000-2002m



2002-2007m



2007-2012m



2012-2017m



2017-2020m



2020-2025m



2025-2030m



2030-2033m



2048-2052m

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
151	NORDLAND GP
360	UTSIRA FM



550	HORDALAND GP
555	SKADE FM
695	NO FORMAL NAME
1203	GRID FM
1255	NO FORMAL NAME
1294	GRID FM
1309	NO FORMAL NAME
1964	ROGALAND GP
1964	BALDER FM
2011	INTRA BALDER FM SS
2018	BALDER FM
2031	SELE FM
2049	HERMOD FM
2082	SELE FM
2098	HERMOD FM
2112	SELE FM
2116	LISTA FM
2161	HEIMDAL FM
2624	LISTA FM
2728	TY FM
2828	SHETLAND GP
2828	JORSALFARE FM

Composite logs

Document name	Document format	Document size [MB]
2244	pdf	0.36

Geochemical information

Document name	Document format	Document size [MB]
2244_1	pdf	1.88

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





Document name	Document format	Document size [MB]
2244 24 9 5 COMPLETION REPORT AND LOG	pdf	17.34

Logs

Log type	Log top depth [m]	Log bottom depth [m]
ACBL	129	574
ACBL	450	1344
BRIDGEPLUG BST CCL	1700	1806
CBL VDL GR	1010	1932
CDL CN GR CAL	1750	2858
DIFL ACL SP GR CAL	129	1362
DIFL ACL SP GR CAL	1344	1881
DIFL ACL SP GR CAL	1932	2859
DLL MLL SL CAL SP	1930	2350
FMT VPC GR	2011	2320
FMT VPC GR	2012	2012
FMT VPC GR	2012	2111
FMT VPC GR	2017	2017
HDIP GR	1932	2350
MWD LWD - GR DPR	159	2834
SWC PFC	1950	2657
VSP	500	2850

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	235.0	36	240.0	0.00	LOT
SURF.COND.	20	576.0	26	581.0	0.00	LOT
INTERM.	13 3/8	1346.0	17 1/2	1377.0	0.00	LOT
INTERM.	9 5/8	1935.0	12 1/2	1941.0	0.00	LOT
OPEN HOLE		2860.0	8 1/2	2860.0	0.00	LOT

Drilling mud





Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
240	1.20	15.0		WATER BASED	
580	1.25	100.0		WATER BASED	
1124	1.17	18.0		WATER BASED	
1377	1.25	23.0		WATER BASED	
1377	1.22	20.0		WATER BASED	
2203	1.25	23.0		DUMMY	
2860	1.25	21.0		DUMMY	

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]
2244_Formalion_pressure_(Formasjonstrykk)	pdf	0.21

