

**General information**

Wellbore name	35/11-4
Type	EXPLORATION
Purpose	WILDCAT
Status	SUSPENDED
Factmaps in new window	link to map
Main area	NORTH SEA
Field	FRAM
Discovery	35/11-4 Fram
Well name	35/11-4
Seismic location	MN88 - 814 SP 440
Production licence	090
Drilling operator	Mobil Exploration Norway INC
Drill permit	642-L
Drilling facility	YATZY
Drilling days	134
Entered date	18.08.1990
Completed date	29.12.1990
Release date	29.12.1992
Publication date	25.04.2005
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL/GAS
Discovery wellbore	YES
1st level with HC, age	LATE JURASSIC
1st level with HC, formation	SOGNEFJORD FM
2nd level with HC, age	MIDDLE JURASSIC
2nd level with HC, formation	FENSFJORD FM
3rd level with HC, age	MIDDLE JURASSIC
3rd level with HC, formation	BRENT GP
Kelly bushing elevation [m]	17.0
Water depth [m]	355.0
Total depth (MD) [m RKB]	3127.0
Final vertical depth (TVD) [m RKB]	3125.5
Maximum inclination [°]	5.7
Bottom hole temperature [°C]	102
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	STATFJORD GP
Geodetic datum	ED50



NS degrees	61° 1' 59.93" N
EW degrees	3° 32' 53.58" E
NS UTM [m]	6766782.48
EW UTM [m]	529620.95
UTM zone	31
NPDID wellbore	1523

Wellbore history

General

Well 35/11-4 was designed to drill at a site located in block 35/11 which is situated on the eastern flank of the Viking Graben and northwest of the Horda Platform. The regional structural generally trends north-south, with some north-northeast components. Planned TD was 3317 m, which was prognosed to be near top Triassic. The primary objective for 35/11-4 was the Middle Jurassic Brent Group. Reservoirs were expected in the Tarbert, Ness, Etive and Oseberg formations. Secondary targets were possible sand development of Sognefjord Formation sand in the Late Jurassic as well as Paleocene sand mounds.

Operations and results

Wildcat well 35/11-4 was spudded with the dynamically positioned semi-submersible installation Yatzy on 18 August 1990 and drilled to TD at 3127 m in the Early Jurassic Statfjord Formation. Yatzy was the first dynamically positioned drilling unit used offshore Norway and 35/11-4 was the rig's first well. This implied significant rig time spent on testing and down time due to failure of first-time equipment. At a depth of 2072 m one decided to sidetrack the well from 1700 m in order obtain cores from the hydrocarbon bearing zones of the Sognefjord formation. This led to a maximum deviation of 5.7 deg at 1765 m. The well was drilled with seawater and viscous pills down to 1009 m and with KCl/polymer mud from 1009 m to TD.

The Lower Eocene consisted of a continuous argillaceous sequence and no reservoir rocks were penetrated. At 1647 m good reservoir quality sandstones were found in the Paleocene Lista Formation but they were not hydrocarbon bearing. Poor shows were observed in limestones of the Cretaceous Shetland Group. A total of four hydrocarbon-bearing zones were discovered in the Jurassic: in the Sognefjord Formation in the original hole and in the Sognefjord, Fensfjord Formations and Brent Group in the sidetrack hole. Mud log shows were recorded in most of the sandstone intervals from 1984 meters to the OWC in the Rannoch Formation at 2687 meters. The log evaluation indicated possible residual hydrocarbon from the OWC down to 2712 meters in the Oseberg Formation, mud logs indicated weak to poor shows over the same interval.

Open hole logging, FMT pressure testing and FMT sampling proved movable hydrocarbons. The Upper Sognefjord Formation contained 11.4 meters of gas on top of 5.4 meters of oil with OWC at 2005 meters. The Lower Sognefjord Formation contained 14.6 meters of oil on water with OWC at 2050.5 meters. The Fensfjord contained 5.4 meters of oil in micaceous sandstones. FMT pressure data defined OWC in the Fensfjord at 2310 meters. Sandstones in the Brent Group contain 18.6 meters of gas on oil and 17.1 meters of oil on water. The GOC and OWC were found at 2670 and 2687 meters respectively.

Reservoir quality of the sandstones is generally good though some are micaceous. In places the sandstones are very micaceous and the permeability is low. The micaceous zones may even act as barriers to the vertical migration of hydrocarbons particularly in the Sognefjord Formation. This may be one explanation for the separate hydrocarbon



accumulations in the formation.

Eight cores were cut in the Late and Middle Jurassic reservoirs; five in the Sognefjord Formation (108 m cut with 95% recovery) and three in the Fensfjord Formation (41.5 m cut with 98% recovery). FMT fluid samples were recovered from 1995 meters in the original hole (gas) and from 2000 m, 2038 m, 2290 m, and 2678 m in the sidetrack hole (all oil). A gas/condensate sample was recovered at 2634.5 m. A total of 125 sidewall cores were attempted and 100 were recovered.

The well was suspended on 29 December 1990 as an oil and gas discovery.

Testing

Drill stem testing was planned for a re-entry in 1991.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
1010.00	3127.00

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	1977.0	1981.4	[m]
2	1982.0	2007.7	[m]
3	2009.0	2027.8	[m]
4	2033.0	2057.7	[m]
5	2058.0	2083.8	[m]
6	2285.0	2289.8	[m]
7	2293.0	2300.4	[m]
8	2303.0	2326.5	[m]

Total core sample length [m]	135.1
Cores available for sampling?	YES

Core photos



1977-1981m



1982-1987m



1987-1992m



1992-1997m



1997-2002m



2002-2007m



2007-2013m



2013-2018m



2018-2023m



2023-2027m



2030-2035m



2035-2040m



2045-2050m



2040-2045m



2050-2055m



2055-2057m



2058-2063m



2063-2068m



2068-2073m



2073-2078m



2078-2083m



2285-2289m



2289-2294m



2294-2299m



2299-2303m



2303-2308m



2308-2313m



2313-2318m



2318-2323m



2323-2326m

**Palynological slides at the Norwegian Offshore Directorate**

Sample depth	Depth unit	Sample type	Laboratory
1020.0	[m]	DC	RRI
1050.0	[m]	DC	RRI
1090.0	[m]	DC	RRI
1130.0	[m]	DC	RRI
1210.0	[m]	DC	RRI
1250.0	[m]	DC	RRI
1300.0	[m]	DC	RRI
1360.0	[m]	DC	RRI
1410.0	[m]	DC	RRI
1430.0	[m]	DC	RRI
1450.0	[m]	DC	RRI
1470.0	[m]	DC	RRI
1510.0	[m]	DC	RRI
1530.0	[m]	DC	RRI
1580.0	[m]	DC	RRI
1670.0	[m]	DC	RRI
1710.0	[m]	DC	RRI
1758.0	[m]	SWC	RRI
1790.0	[m]	SWC	RRI
1810.0	[m]	DC	RRI
1855.0	[m]	DC	RRI
1880.0	[m]	DC	RRI
1903.0	[m]	DC	RRI
1957.0	[m]	SWC	RRI
1968.0	[m]	SWC	RRI
1970.0	[m]	DC	RRI
1975.0	[m]	DC	RRI
1980.0	[m]	C	RRI
1981.0	[m]	C	RRI
1988.0	[m]	C	RRI
1990.0	[m]	SWC	RRI
2001.0	[m]	C	RRI
2003.0	[m]	SWC	RRI
2011.0	[m]	C	RRI
2014.0	[m]	C	RRI
2025.0	[m]	C	RRI



2031.0	[m]	C	RRI
2036.0	[m]	C	RRI
2040.0	[m]	C	RRI
2044.0	[m]	C	RRI
2067.0	[m]	C	RRI
2275.0	[m]	DC	RRI
2280.0	[m]	DC	RRI
2285.0	[m]	DC	RRI
2286.0	[m]	C	RRI
2291.0	[m]	C	RRI
2295.0	[m]	C	RRI
2295.0	[m]	DC	RRI
2300.0	[m]	C	RRI
2304.0	[m]	C	RRI
2307.0	[m]	C	RRI
2314.0	[m]	C	RRI
2326.0	[m]	C	RRI
2530.0	[m]	DC	RRI
2540.0	[m]	DC	RRI
2545.0	[m]	DC	RRI
2610.0	[m]	DC	RRI
2620.0	[m]	DC	RRI
2790.0	[m]	DC	RRI
2865.0	[m]	DC	RRI
2875.0	[m]	DC	RRI
2925.0	[m]	DC	RRI
3120.0	[m]	DC	RRI

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
372	NORDLAND GP
707	UTSIRA FM
734	HORDALAND GP
1397	ROGALAND GP
1397	BALDER FM
1448	SELE FM
1561	LISTA FM
1646	NO FORMAL NAME



1710	LISTA FM
1760	VÅLE FM
1835	SHETLAND GP
1835	JORSALFARE FM
1900	KYRRE FM
1966	VIKING GP
1966	DRAUPNE FM
1984	SOGNEFJORD FM
2116	HEATHER FM
2284	FENSFJORD FM
2365	HEATHER FM
2624	BRENT GP
2624	NESS FM
2656	ETIVE FM
2686	RANNOCH FM
2707	OSEBERG FM
2785	DUNLIN GP
2785	DRAKE FM
2825	COOK FM
2918	AMUNDSEN FM
3023	JOHANSEN FM
3082	STATFJORD GP

Composite logs

Document name	Document format	Document size [MB]
1523	pdf	0.49

Geochemical information

Document name	Document format	Document size [MB]
1523_1	pdf	1.45
1523_2	pdf	6.73

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





Document name	Document format	Document size [MB]
1523 01 WDSS General Information	pdf	0.24
1523 02 WDSS completion log	pdf	0.20

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

Document name	Document format	Document size [MB]
1523 35 11 4 COMPLETION LOG	pdf	2.49
1523 35 11 4 COMPLETION REPORT	pdf	44.67

Logs

Log type	Log top depth [m]	Log bottom depth [m]
ACW	1785	2035
CBL VDL GR	906	1935
COREGUN GR	1013	2011
COREGUN GR	1960	3105
COREGUN GR	1997	2920
DIFL AC GR	1003	3129
DIPOG GR	1935	3129
FMT HP GR	1650	2011
FMT HP GR	1986	3095
FMT HP GR	1998	2634
FMT HP GR	2000	0
FMT HP GR	2290	0
MLL DLL GR	1935	3129
MWD - GR RES DIR	354	3127
SWAL GR	1290	3130
VELOCITY	372	3130
ZDL CNL GR SL	1935	3129
ZDL GR	1003	2043

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	505.0	36	507.0	0.00	LOT





INTERM.	20	1002.0	26	1005.0	1.67	LOT
INTERM.	13 3/8	1936.0	17 1/2	1940.0	1.88	LOT
INTERM.	9 5/8	2798.0	12 1/4	2800.0	0.00	LOT
OPEN HOLE		3127.0	8 1/2	3127.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
505	1.04			WATER BASED	20.08.1990
509	1.04			WATER BASED	21.08.1990
509	1.04			WATER BASED	22.08.1990
509	1.04			WATER BASED	23.08.1990
1009	1.04			WATER BASED	27.08.1990
1009	1.04			WATER BASED	27.08.1990
1009	1.04			WATER BASED	28.08.1990
1009	1.04			WATER BASED	29.08.1990
1009	1.04			WATER BASED	30.08.1990
1009	1.04			WATER BASED	31.08.1990
1009	1.04			WATER BASED	03.09.1990
1009	1.04			WATER BASED	05.09.1990
1009	1.04			WATER BASED	06.09.1990
1009	1.04			WATER BASED	07.09.1990
1009	1.04			WATER BASED	10.09.1990
1009	1.04			WATER BASED	10.09.1990
1009	1.04			WATER BASED	10.09.1990
1009	1.04			WATER BASED	11.09.1990
1009	1.04			WATER BASED	13.09.1990
1009	1.04			WATER BASED	14.09.1990
1009	1.04			WATER BASED	17.09.1990
1009	1.00			WATER BASED	18.09.1990
1009	1.00			WATER BASED	19.09.1990
1009	1.00			WATER BASED	20.09.1990
1009	1.00			WATER BASED	21.09.1990
1009	1.00			WATER BASED	24.09.1990
1009	1.00			WATER BASED	24.09.1990
1009	1.00			WATER BASED	24.09.1990
1009	1.00			WATER BASED	25.09.1990
1009	1.00			WATER BASED	27.09.1990



1009	1.00			WATER BASED	28.09.1990
1009	1.20			WATER BASED	01.10.1990
1009	1.02			WATER BASED	02.10.1990
1009	1.20			WATER BASED	03.10.1990
1009	1.20			WATER BASED	05.10.1990
1009	1.20			WATER BASED	08.10.1990
1009	1.04			WATER BASED	27.08.1990
1009	1.04			WATER BASED	04.09.1990
1009	1.00			WATER BASED	26.09.1990
1009	1.20			WATER BASED	02.10.1990
1009	1.20			WATER BASED	04.10.1990
1014	1.20			WATER BASED	08.10.1990
1036	1.20			WATER BASED	08.10.1990
1064	1.20	22.0	24.0	WATER BASED	09.10.1990
1192	1.21	19.0	27.0	WATER BASED	09.10.1990
1192	1.20			WATER BASED	15.10.1990
1265	1.20			WATER BASED	15.10.1990
1265	1.21			WATER BASED	15.10.1990
1570	1.24	16.0	22.0	WATER BASED	16.10.1990
1660	1.22	17.0	19.0	WATER BASED	17.10.1990
1692	1.20	15.0	20.0	WATER BASED	29.10.1990
1693	1.22			WATER BASED	18.10.1990
1700	1.23	15.0	20.0	WATER BASED	26.10.1990
1718	1.20	15.0	20.0	WATER BASED	29.10.1990
1763	1.21	14.0	20.0	WATER BASED	22.10.1990
1785	1.20	15.0	20.0	WATER BASED	29.10.1990
1822	1.21	15.0	21.0	WATER BASED	22.10.1990
1825	1.21	15.0	20.0	WATER BASED	30.10.1990
1928	1.21	15.0	20.0	WATER BASED	31.10.1990
1941	1.21	15.0	20.0	WATER BASED	01.11.1990
1941	1.21	15.0	20.0	WATER BASED	02.11.1990
1941	1.21	15.0	20.0	WATER BASED	06.11.1990
1974	1.21	15.0	20.0	WATER BASED	22.10.1990
1977	1.22	150.0	200.0	WATER BASED	06.11.1990
2000	1.27	17.0	24.0	WATER BASED	30.11.1990
2003	1.10			WATER BASED	15.01.1992
2003	1.10			WATER BASED	16.01.1992
2003	1.10			WATER BASED	17.01.1992
2009	1.22	150.0	200.0	WATER BASED	06.11.1990
2030	1.22	150.0	200.0	WATER BASED	06.11.1990



2046	1.10			WATER BASED	06.01.1992
2046	1.10			WATER BASED	06.01.1992
2046	1.10			WATER BASED	06.01.1992
2046	1.10			WATER BASED	06.01.1992
2046	1.10			WATER BASED	06.01.1992
2046	1.10			WATER BASED	06.01.1992
2046	1.10			WATER BASED	06.01.1992
2046	1.10			WATER BASED	06.01.1992
2046	1.10			WATER BASED	13.01.1992
2046	1.10			WATER BASED	13.01.1992
2046	1.10			WATER BASED	14.01.1992
2046	1.10			WATER BASED	06.01.1992
2046	1.10			WATER BASED	13.01.1992
2072	1.20	150.0	20.0	WATER BASED	23.10.1990
2072	1.20	150.0	20.0	WATER BASED	24.10.1990
2072	1.20	15.0	20.0	WATER BASED	25.10.1990
2077	1.24	18.0	24.0	WATER BASED	07.11.1990
2085	1.24	18.0	24.0	WATER BASED	09.11.1990
2085	1.24	18.0	24.0	WATER BASED	08.11.1990
2144	1.20	17.0	26.0	WATER BASED	12.11.1990
2284	1.10			WATER BASED	12.12.1991
2284	1.10			WATER BASED	17.12.1991
2284	1.10			WATER BASED	17.12.1991
2284	1.10			WATER BASED	17.12.1991
2284	1.10			WATER BASED	17.12.1991
2284	1.10			WATER BASED	19.12.1991
2284	1.10			WATER BASED	19.12.1991
2284	1.10			WATER BASED	23.12.1991
2284	1.10			WATER BASED	23.12.1991
2284	1.10			WATER BASED	23.12.1991
2284	1.10			WATER BASED	24.12.1991
2284	1.10			WATER BASED	27.12.1991
2284	1.10			WATER BASED	27.12.1991
2284	1.10			WATER BASED	31.12.1991
2284	1.10			WATER BASED	31.12.1991
2284	1.10			WATER BASED	31.12.1991
2284	1.10			WATER BASED	17.12.1991
2284	1.10			WATER BASED	20.12.1991
2284	1.10			WATER BASED	27.12.1991
2285	1.21	16.0	24.0	WATER BASED	13.11.1990



2290	1.22	16.0	24.0	WATER BASED	13.11.1990
2301	1.24	15.0	22.0	WATER BASED	15.11.1990
2385	1.24	17.0	26.0	WATER BASED	16.11.1990
2525	1.27	16.0	27.0	WATER BASED	19.11.1990
2629	1.27	17.0	24.0	WATER BASED	27.11.1990
2629	1.27	17.0	24.0	WATER BASED	28.11.1990
2629	1.27	17.0	24.0	WATER BASED	29.11.1990
2629	1.27	17.0	24.0	WATER BASED	19.11.1990
2629	1.27	17.0	24.0	WATER BASED	27.11.1990
2651	1.27	17.0	24.0	WATER BASED	30.11.1990
2664	1.27	17.0	24.0	WATER BASED	03.12.1990
2683	1.10			WATER BASED	05.12.1991
2683	1.10			WATER BASED	09.12.1991
2683	1.10			WATER BASED	09.12.1991
2683	1.10			WATER BASED	10.12.1991
2683	1.10			WATER BASED	06.12.1991
2683	1.10			WATER BASED	09.12.1991
2698	1.27	17.0	24.0	WATER BASED	03.12.1990
2810	1.26	15.0	20.0	WATER BASED	27.12.1990
2810	1.26	15.0	20.0	WATER BASED	27.12.1990
2810	1.26	15.0	20.0	WATER BASED	31.12.1990
2810	1.26	15.0	20.0	WATER BASED	31.12.1990
2810	1.26	15.0	20.0	WATER BASED	31.12.1990
2810	1.26	15.0	20.0	WATER BASED	02.01.1991
2810	1.26	15.0	20.0	WATER BASED	02.01.1991
2810	1.26	15.0	20.0	WATER BASED	07.01.1991
2810	1.26	15.0	20.0	WATER BASED	07.01.1991
2810	1.26	15.0	20.0	WATER BASED	08.01.1991
2810	1.26	15.0	20.0	WATER BASED	08.01.1991
2810	1.26	15.0	20.0	WATER BASED	08.01.1991
2810	1.26	15.0	20.0	WATER BASED	14.01.1991
2810	1.26	15.0	20.0	WATER BASED	14.01.1991
2810	1.26	15.0	20.0	WATER BASED	14.01.1991
2810	1.26	15.0	20.0	WATER BASED	31.12.1990
2810	1.26	15.0	20.0	WATER BASED	07.01.1991
2822	1.28	17.0	24.0	WATER BASED	04.12.1990
2874	1.26	15.0	20.0	WATER BASED	04.12.1990
2910	1.26	15.0	20.0	WATER BASED	05.12.1990
2910	1.26	15.0	20.0	WATER BASED	11.12.1990
2910	1.26	15.0	20.0	WATER BASED	12.12.1990



2910	1.26	15.0	20.0	WATER BASED	14.12.1990
2910	1.26	15.0	20.0	WATER BASED	14.12.1990
2910	1.26	15.0	20.0	WATER BASED	19.12.1990
3029	1.26	15.0	20.0	WATER BASED	19.12.1990
3029	1.26	15.0	20.0	WATER BASED	19.12.1990
3127	1.26	15.0	20.0	WATER BASED	27.12.1990
3127	1.26	15.0	20.0	WATER BASED	19.12.1990
3127	1.26	15.0	20.0	WATER BASED	27.12.1990
3127	1.26	15.0	20.0	WATER BASED	27.12.1990
3127	1.26	15.0	20.0	WATER BASED	27.12.1990
3127	1.26	15.0	20.0	WATER BASED	27.12.1990
3127	1.26	15.0	20.0	WATER BASED	27.12.1990

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]
1523 Formation pressure (Formasjonstrykk)	pdf	0.22

