



Generell informasjon

Brønnbane navn	35/11-4
Type	EXPLORATION
Formål	WILDCAT
Status	SUSPENDED
Faktakart i nytt vindu	lenke til kart
Hovedområde	NORTH SEA
Felt	FRAM
Funn	35/11-4 Fram
Brønn navn	35/11-4
Seismisk lokalisering	MN88 - 814 SP 440
Utvinningstillatelse	090
Boreoperatør	Mobil Exploration Norway INC
Boretillatelse	642-L
Boreinnretning	YATZY
Boredager	134
Borestart	18.08.1990
Boreslutt	29.12.1990
Frigitt dato	29.12.1992
Publiseringsdato	25.04.2005
Opprinnelig formål	WILDCAT
Gjenåpnet	NO
Innhold	OIL/GAS
Funnbrønnbane	YES
1. nivå med hydrokarboner, alder	LATE JURASSIC
1. nivå med hydrokarboner, formasjon.	SOGNEFJORD FM
2. nivå med hydrokarboner, alder	MIDDLE JURASSIC
2. nivå med hydrokarboner, formasjon	FENSFJORD FM
3. nivå med hydrokarboner, alder	MIDDLE JURASSIC
3. nivå med hydrokarboner, formasjon	BRENT GP
Avstand, boredekk - midlere havflate [m]	17.0
Vanndybde ved midlere havflate [m]	355.0
Totalt målt dybde (MD) [m RKB]	3127.0
Totalt vertikalt dybde (TVD) [m RKB]	3125.5
Maks inklinasjon [°]	5.7



Temperatur ved bunn av brønnbanen [°C]	102
Eldste penetrerte alder	EARLY JURASSIC
Eldste penetrerte formasjon	STATFJORD GP
Geodetisk datum	ED50
NS grader	61° 1' 59.93" N
ØV grader	3° 32' 53.58" E
NS UTM [m]	6766782.48
ØV UTM [m]	529620.95
UTM sone	31
NPDID for brønnbanen	1523

Brønnhistorie

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.

Borekaks i Sokkeldirektoratet

Borekaksprøve, topp dybde [m]	Borekaksprøve, bunn dybde [m]
1010.00	3127.00

Borekaks tilgjengelig for prøvetaking?	YES
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Borekjerne i Sokkeldirektoratet

Kjerneprøve nummer	Kjerneprøve - topp dybde	Kjerneprøve - bunn dybde	Kjerneprøve dybde - enhet
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 kjerneprøve lengde [m]	135.1
Kjerne tilgjengelig for prøvetaking?	YES



Kjernebilder



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



2323-2328m



2303-2308m 2308-2313m 2313-2318m 2318-2323m 2323-2326m

Palynologiske preparater i Sokkeldirektoratet

Prøve dybde	Dybde enhet	Prøve type	Laboratorie
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

Litostratigrafi

Topp Dyb [mMD RKB]	Litostrat. enhet
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

Spleisede logger

Dokument navn	Dokument format	Dokument størrelse [KB]
1523	pdf	0.49

Geokjemisk informasjon

Dokument navn	Dokument format	Dokument størrelse [KB]
1523_1	pdf	1.45
1523_2	pdf	6.73





Dokumenter - eldre Sökkeldirektoratets WDSS rapporter og andre relaterte dokumenter

Dokument navn	Dokument format	Dokument størrelse [KB]
1523_01_WDSS_General_Information	pdf	0.24
1523_02_WDSS_completion_log	pdf	0.20

Dokumenter - rapportert av utvinningstillatelsen (frigitt ihht til regelverk)

Dokument navn	Dokument format	Dokument størrelse [KB]
1523_35_11_4_COMPLETION_LOG	pdf	2.49
1523_35_11_4_COMPLETION_REPORT	pdf	44.67

Logger

Type logg	Topp dyp for logg [m]	Bunn dyp for logg [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

Foringsrør og formasjonsstyrketester





Type utforing	Utforing diam. [tommer]	Utforing dybde [m]	Brønnbane diam. [tommer]	Brønnbane dyp [m]	LOT/FIT slam eqv. [g/cm3]	Type formasjonstest
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

Boreslam

Dybde MD [m]	Egenvekt, slam [g/cm3]	Viskositet, slam [mPa.s]	Flytegrense [Pa]	Type slam	Dato, måling
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
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1009	1.04			WATER BASED	07.09.1990
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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



Faktasider

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1009	1.00			WATER BASED	24.09.1990
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2003	1.10			WATER BASED	15.01.1992
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Faktasider

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2874	1.26	15.0	20.0	WATER BASED	04.12.1990



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

Trykkplott

Porertrykksdataene kommer fra logging i brønnen hvis ingen annen kilde er oppgitt. I noen brønner der trykk ikke er logget, er det brukt informasjon fra formasjonstester eller brønnspark. Trykkdataene er rapportert inn til Oljedirektoratet og videre prosessert og kvalitetssikret av IHS Markit.

Dokument navn	Dokument format	Dokument størrelse [KB]
1523 Formation pressure (Formasjonstrykk)	pdf	0.22

