General information

Wellbore name	34/10-34
Type	EXPLORATION
Purpose	WILDCAT
Status	SUSPENDED
Factmaps in new window	link to map
Main area	NORTH SEA
Field	GULLFAKS
Discovery	34/10-34 Gullfaks Vest
Well name	34/10-34
Seismic location	ST 8511-364& SP. 327P
Production licence	050
Drilling operator	Den norske stats oljeselskap a.s
Drill permit	672-L
Drilling facility	DEEPSEA BERGEN
Drilling days	52
Entered date	10.04.1991
Completed date	31.05.1991
Release date	31.05.1993
Publication date	19.10.2006
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	YES
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	TARBERT FM
Kelly bushing elevation [m]	23.0
Water depth [m]	139.0
Total depth (MD) [m RKB]	2410.0
Final vertical depth (TVD) [m RKB]	2410.0
Maximum inclination [°]	4.2
Bottom hole temperature [°C]	84
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	COOK FM
Geodetic datum	ED50
NS degrees	61° 13' 4.19'' N
EW degrees	2° 8' 4.69'' E
NS UTM [m]	6787519.76
EW UTM [m]	453515.53

UTM zone	31
NPDID wellbore	1747

Wellbore history

General

Well 34/10-34 was designed to drill the C6 structure west of the Gullfaks Field. Block 34/10 is situated in the Tampen Spur area and the 6C structure is an elongated, lens shaped rotated fault block dipping to the NW and bounded to the East and South by faults. At the well location the Heather Formation and uppermost Tarbert Formation have been eroded. The main objective of the well was to test the potential for hydrocarbons in the Brent Group sands west of the Gullfaks Field. No secondary prospects were defined.

Operations and results

Wildcat well 34/10-34 was spudded with the semi-submersible installation Deepsea Bergen on 10 April 1991 and drilled to TD at 2410 m in the Early Jurassic Cook Formation. While drilling the 26" hole some indications of gas was detected on ROV sonar, but no gas was observed during hole opening. Apart from some problems with stuck pipe, drilling went without significant problems. The screen from the drill string dropped into the MWD tool, thus preventing pulses from arriving at the surface. Due to this MWD is missing from 1349 m to1675 m. The well was drilled with gel/CMC down to 795 m, with gypsum/PAC from 795 m to 1994 m, and with bentonite/Lignite from 1994 m to TD.

Spotted shows were observed in limestones in the interval 1558 m to 1678 m in the Hordaland Group, through the Balder Formation and into the upper part of the Lista Formation. The Viking Group was encountered at 1991 m and consisted of only two m of Heather Formation. The Tarbert Formation sandstones was encountered at 1993 m and proved oil. From electric logs and FMT pressure measurements the OWC was interpreted at 2013.5 m, with continuous oil shows on cores extending down to 2040 m. A weak oil show was observed in an SWC from the top of the Cook Formation sandstone at 2360 m. One segregated sample was taken at 2006.0 m. The sampling time for the 2-3/4 gallon chamber was 62.3 minutes and for the one-gallon chamber 34.8 minutes. The 2 3/4 gallon chamber contained 8 litres of oil and mud filtrate and 0.58 m3 gas and the one- gallon chamber contained 1.28 1itres oil and 0.122 m3 gas. A total of 271 m conventional core was recovered in eleven cores in the Brent Group (1995 m to 2273 m). Sixty sidewall cores were attempted and 52 were recovered.

The well was prepared for conversion to production well and suspended on 31 May 1991 as an oil discovery.

Testing

One drill stem test was performed in the Tarbert Formation from the perforated interval: 1994 - 2001 m. The well produced 1545 sm3/d oil with a density of 0.860 g/cm3 at standard conditions and 135784 sm3/d gas with a relative density of 0.682 g/cc through a 48/64" (19.05 mm) choke.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
790.00	2410.00

Cuttings available for sampling?	YES

Cores at the Norwegian Offshore Directorate

Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	1995.0	2011.0	[m]
2	2013.0	2039.0	[m]
3	2033.0	2067.8	[m]
4	2072.0	2096.0	[m]
5	2096.0	2121.3	[m]
6	2126.0	2150.0	[m]
7	2150.0	2170.0	[m]
8	2171.0	2198.0	[m]
9	2198.0	2226.2	[m]
10	2226.0	2254.0	[m]
11	2254.0	2273.0	[m]

Total core sample length [m]	272.3
Cores available for sampling?	YES

Core photos


1995-2000m


2000-2005m


2005-2010m


2010-2017m


2017-2022m


2022-2027m


2027-2032m


2032-2037m


2037-2042m


2042-2047m


2047-2052m


2052-2057m


2057-2062m


2062-2067m


2067-2072m


2072-2077m


2077-2082m


2082-2087m


2087-2092m


2092-2096m


2096-2101m


2101-2106m


2106-2111m


2111-2116m


2116-2121m


2121-2126m


2126-2133m


2133-2138m


2138-2143m


2143-2148m


2148-2151m


2151-2156m


2156-2161m


2161-2166m


2166-2172m


2172-2177m


2177-2182m


2182-2187m


2187-2192m


2192-2197m


2197-2201m


2201-2206m


2206-2211m


2211-2216m


2216-2221m


2221-2226m


2226-2230m


2230-2235m


2235-2240m


2240-2245m


2245-2250m


2250-2255m


2265-2270m


2255-2260m


2260-2265m


2270-2273m


2121-2126m


2126-2133m


2133-2138m


2138-2143m


2143-2148m


2148-2151m


2151-2156m


2156-2161m


2161-2166m


2166-2172m


2172-2177m


2177-2182m


2182-2187m


2187-2192m


2192-2197m


2197-2201m


2201-2206m


2206-2211m


2211-2216m


2216-2221m


2221-2226m


2226-2230m


2230-2235m


2235-2240m


2240-2245m


2245-2250m


2250-2255m


2255-2260m


2260-2265m


2265-2270m


2270-2273m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
930.0	[m]	SWC	STATO
950.0	[m]	DC	GEOST
965.0	[m]	SWC	STATO
980.0	[m]	SWC	STATO
1010.0	[m]	DC	GEOST
1020.0	[m]	DC	GEOST
1042.0	[m]	SWC	STATO
1050.0	[m]	DC	GEOST
1070.0	[m]	DC	GEOST

1084.0	[m]	SWC	STATO
1108.0	[m]	SWC	STATO
1135.0	[m]	SWC	STATO
1162.0	[m]	SWC	STATO
1180.0	[m]	DC	GEOST
1190.0	[m]	DC	GEOST
1200.0	[m]	DC	GEOST
1226.0	[m]	SWC	STATO
1257.0	[m]	SWC	STATO
1268.0	[m]	SWC	STATO
1282.0	[m]	SWC	STATO
1300.0	[m]	DC	GEOST
1307.0	[m]	SWC	STATO
1313.0	[m]	SWC	STATO
1320.0	[m]	DC	GEOST
1340.0	[m]	SWC	STATO
1358.0	[m]	SWC	STATO
1378.0	[m]	SWC	STATO
1415.0	[m]	SWC	STATO
1430.0	[m]	DC	GEOST
1440.0	[m]	DC	GEOST
1460.0	[m]	DC	GEOST
1475.0	[m]	SWC	STATO
1490.0	[m]	DC	GEOST
1500.0	[m]	DC	GEOST
1515.0	[m]	SWC	STATO
1530.0	[m]	DC	GEOST
1550.0	[m]	DC	GEOST
1560.0	[m]	DC	GEOST
1580.0	[m]	SWC	STATO
1595.0	[m]	SWC	STATO
1605.0	[m]	SWC	STATO
1620.0	[m]	DC	GEOST
1640.0	[m]	DC	GEOST
1650.0	[m]	SWC	STATO
1665.0	[m]	SWC	STATO
1680.0	[m]	DC	GEOST
1700.0	[m]	DC	GEOST
1710.0	[m]	DC	GEOST
1730.0	[m]	DC	GEOST

1740.0	[m]	DC	GEOST
1760.0	[m]	DC	GEOST
1770.0	[m]	DC	GEOST
1790.0	[m]	DC	GEOST
1800.0	[m]	DC	GEOST
1810.0	[m]	DC	GEOST
1830.0	[m]	DC	GEOST
1840.0	[m]	DC	GEOST
1860.0	[m]	DC	GEOST
1870.0	[m]	DC	GEOST
1890.0	[m]	DC	GEOST
1900.0	[m]	DC	GEOST
1920.0	[m]	DC	GEOST
1930.0	[m]	DC	GEOST
1950.0	[m]	DC	GEOST
1960.0	[m]	DC	GEOST
1980.0	[m]	DC	GEOST
1985.0	[m]	SWC	STATO
1990.0	[m]	DC	GEOST
1995.5	[m]	C	OD
1996.6	[m]	C	OD
1996.7	[m]	C	OD
1997.6	[m]	C	OD
1998.5	[m]	C	OD
1999.4	[m]	C	OD
1999.4	[m]	C	OD
2000.5	[m]	C	OD
2006.0	[m]	C	GEOSTRAT
2006.1	[m]	C	OD
2009.0	[m]	C	GEOSTR
2013.0	[m]	C	GEOSTR
2028.0	[m]	C	GEOSTR
2035.0	[m]	C	GEOSTR
2035.0	[m]	C	GEOSTR
2053.0	[m]	C	GEOSTR
2056.0	[m]	C	GEOSTR
2063.0	[m]	C	GEOSTR
2066.0	[m]	C	GEOSTR
2070.0	[m]	C	GEOSTR
2075.0	[m]	C	GEOSTR

2077.0	[m]	C	GEOSTR
2083.0	[m]	C	GEOSTR
2101.0	[m]	C	GEOSTR
2109.0	[m]	C	GEOSTR
2112.0	[m]	C	GEOSTR
2120.0	[m]	C	GEOSTR
2122.0	[m]	C	GEOSTR
2132.0	[m]	C	GEOSTR
2136.0	[m]	C	GEOSTR
2140.0	[m]	C	GEOSTR
2144.0	[m]	C	GEOSTR
2150.0	[m]	C	GEOSTR
2162.0	[m]	C	GEOSTR
2167.0	[m]	C	GEOSTR
2175.0	[m]	C	GEOSTR
2177.0	[m]	C	GEOSTR
2231.0	[m]	C	GEOSTR
2249.0	[m]	C	GEOSTR
2252.0	[m]	C	GEOSTR
2257.0	[m]	C	GEOSTR
2263.0	[m]	C	GEOSTR
2264.0	[m]	C	GEOSTR
2267.0	[m]	C	GEOSTR
2273.0	[m]	C	GEOSTR
2282.0	[m]	C	GEOSTR
2295.0	[m]	SWC	STATOIL
2312.5	[m]	SWC	STATOI
2325.0	[m]	SWC	STATOI
2332.5	[m]	SWC	STATOI
2350.0	[m]	SWC	STATOI
2363.0	[m]	SWC	STATOI
2369.0	[m]	DC	GEOSTRAT
2382.0	[m]	SWC	STATOIL
2387.0	[m]	DC	GEOSTRAT
2399.5	[m]	SWC	STATOIL
2410.0	[m]	SWC	STATOI

Oil samples at the Norwegian Offshore Directorate

Test type	Bottle number	Top depth MD [m]	Bottom depth MD [m]	Fluid type	Test time	Samples available
DST	TEST1	2001.00	1994.00		23.05.1991 - 12:15	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
163	NORDLAND GP
923	HORDALAND GP
1600	ROGALAND GP
1600	BALDER FM
1660	LISTA FM
1806	SHETLAND GP
1991	VIKING GP
1991	HEATHER FM
1993	BRENT GP
1993	TARBERT FM
2082	NESS FM
2171	ETIVE FM
2188	RANNOCH FM
2268	BROOM FM
2275	DUNLIN GP
2275	DRAKE FM
2357	COOK FM

Geochemical information

Document name	Document format	Document size [MB]
1747_1	pdf	1.78

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

Document name	Document format	Document size [MB]
1747_01_WDSS_General_Information	pdf	0.52

1747_02_WDSS_completion_log	pdf	0.16

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

Document name	Document format	Document size [MB]
1747_34_10_34_COMPLETION_REPORT_AND_LOG	pdf	21.14

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	1994	2001	19.0

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0				75

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	1545	135784	0.860	0.680	87

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL VDL GR CCL	140	2360
CBL VDL GR CCL	170	1510
CBL VDL GR CCL	1600	1994
CBL VDL GR CCL	1950	2360
CDL GR CAL	1675	1995
CDL GRCAL	781	1673
CNL LDL GR CAL	1982	2413
DITD LSS GR	781	1673
DITD LSS GR	1675	1995
DITE SDT NGT AMS	1982	2413
DLL MSFL GR	1982	2282
MWD - GR RES DIR	240	2410

NGS	1982	2413
RFT GR	2000	2362
SHDT GR	1982	2413
VELOCITY	765	2274

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
SURF.COND.	30	231.0	36	235.0	0.00	LOT
INTERM.	20	782.0	26	795.0	1.64	LOT
INTERM.	13 3/8	1675.0	17 1/2	1690.0	1.80	LOT
INTERM.	9 5/8	1982.0	12 1/4	1994.0	1.80	LOT
LINER	7	2405.0	8 1/2	2410.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
411	1.03	11.0		WATER BASED	
795	1.03			WATER BASED	
1265	1.30	22.0		WATER BASED	
1690	1.45	26.0		WATER BASED	
1870	1.64	29.0		WATER BASED	
1990	1.65	29.0		WATER BASED	
1995	1.65	26.0		WATER BASED	
2001	1.65	22.0		WATER BASED	
2182	1.65	25.0		WATER BASED	
2281	1.65	26.0		WATER BASED	
2410	1.65	23.0		WATER BASED	

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]
1747_Formation_pressure_(Formasjonstrykk)	pdf	0.22