General information

Wellbore name	34/10-11
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	GULLFAKS
Discovery	34/10-1 Gullfaks
Well name	34/10-11
Seismic location	S 3D 152 SP 365
Production licence	050
Drilling operator	Den norske stats oljeselskap a.s
Drill permit	264-L
Drilling facility	ROSS RIG (1)
Drilling days	132
Entered date	23.10.1980
Completed date	05.03.1981
Release date	05.03.1983
Publication date	03.12.2014
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL
Discovery wellbore	NO
1st level with HC, age	EARLY JURASSIC
1st level with HC, formation	STATFJORD GP
2nd level with HC, age	EARLY JURASSIC
2nd level with HC, formation	AMUNDSEN FM
Kelly bushing elevation [m]	25.0
Water depth [m]	229.0
Total depth (MD) [m RKB]	2155.0
Final vertical depth (TVD) [m RKB]	2155.0
Maximum inclination [°]	1.1
Bottom hole temperature [°C]	85
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	LUNDE FM
Geodetic datum	ED50
NS degrees	61° 13' 20.84'' N
EW degrees	2° 17' 32.9'' E

NS UTM [m]	6787932.93
EW UTM [m]	461999.28
UTM zone	31
NPDID wellbore	211

Wellbore history

General

Well 34/10-11 was drilled on the Gullfaks Delta structure in the North Sea. The primary objective of the well was to test sandstones of Middle Jurassic age. Secondary objectives were sandstones of Lower Jurassic age.

Operations and results

Appraisal well 34/10-11 was spudded with the semi-submersible installation Ross Rig on 23 October 1980 and drilled to TD at 2155 m in Late Triassic sediments of the Lunde Formation. Bad weather caused 511 hrs lost time (15.7% of total rig time). Significant lost time (509 hrs) was caused also by malfunction and repairs of the BOP. The well was drilled with spud mud down to 463 m, with gel/lignosulphonate/seawater mud from 463 m to 1100 m, with Gypsum/lignosulphonate/sweater mud from 1100 m to 1720 m, and with gel/lignosulphonate/seawater mud from 1720 m to TD.

First oil shows were recorded from 1090 m to 1200 m, intermittent weak shows were seen from 1420 to 1495, and more or less continuous oil shows were recorded on limestone from 1660 m to top reservoir at 1868 m. The well proved oil in sandstones from top of the Early Jurassic Amundsen Formation at 1868 down to the OWC at 2038 m in Late Triassic sediments of the Raude Formation. Below 2038 m shows were recorded down to TD.

Six cores were cut in the interval 1870 m to 1926.5 m in the Amundsen and Nansen formations. Two FIT fluid samplings were attempted. FIT 1 at 2081 m recovered 3 litres 35 °API oil and 7 litres of mud filtrate in the 2 3/4 gallon chamber. The FIT 2 at 2051 m did not recover any fluids.

The well was permanently abandoned on 5 march 1981 as a as an oil appraisal well on the Gullfaks field.

Testing

Two drill stem tests were conducted in the Statfjord Group.

DST1 tested the interval 2018 to 2028 m in the Raude Formation. It produced 399 Sm3 oil and 60880 Sm3 gas /day through a 24/64" choke. GOR was 153 Sm3/Sm3, oil gravity was 36.5°API, and gas gravity was 0.647 (air = 1). The bottom hole temperature in the test was 79.9°C.

DST2 tested the interval 1891 to 1896 m in the Nansen Formation. It produced 389 Sm3 oil and 64560 Sm3 gas /day through a 24/64" choke. GOR was 166 Sm3/Sm3, oil gravity was 36.5°API, and gas gravity was 0.656 (air = 1). The bottom hole temperature in the test was 75.6°C.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
300.00	2155.00

Cuttings available for sampling?	YES

Cores at the Norwegian Offshore Directorate

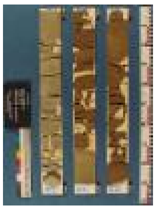
Core sample number	Core sample - top depth	Core sample - bottom depth	Core sample depth - uom
1	1870.0	1879.7	[m]
2	1887.0	1890.7	[m]
3	1891.5	1893.8	[m]
4	1899.0	1906.5	[m]
5	1909.0	1920.0	[m]
6	1920.0	1925.6	[m]

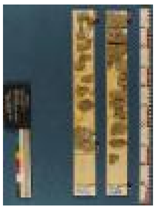
Total core sample length [m]	39.8
Cores available for sampling?	YES

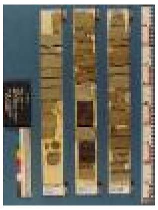
Core photos

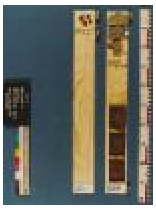

1870-1872m


1872-1875m


1875-1878m


1878-1879m


1887-1889m

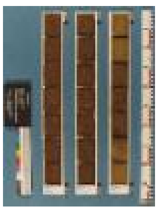

1889-1890m

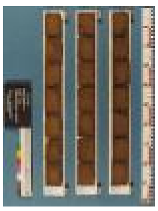

1891-1893m


1899-1901m


1901-1904m


1904-1906m





1909-1911m 1911-1914m 1914-1917m 1917-1919m 1919-1920m


1920-1927m


1922-1925m


1925-1926m

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	TEST2	1891.00	1896.00		23.02.1981 - 00:00	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
254	NORDLAND GP
958	UTSIRA FM
980	HORDALAND GP
1530	ROGALAND GP
1530	BALDER FM
1592	LISTA FM
1695	SHETLAND GP
1868	DUNLIN GP
1868	AMUNDSEN FM
1890	STATFJORD GP
1890	NANSEN FM
1935	EIRIKSSON FM
2000	RAUDE FM
2089	HEGRE GP
2089	LUNDE FM

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

Document name	Document format	Document size [MB]
211_01_WDSS_General_Information	pdf	0.10
211_02_WDSS_completion_log	pdf	0.17

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

Document name	Document format	Document size [MB]
211_34_10_11_Completion_log	pdf	1.32
211_34_10_11_Completion_Report	pdf	26.84
211_34_10_11_Evaluation_Of_Core_Data	pdf	1.70
211_34_10_11_Geological_Re-evaluation_1	pdf	5.21
211_34_10_11_Geological_Re-evaluation_2	pdf	2.89
211_34_10_11_Palaeontological_Stratigraphical_Final_Report	pdf	2.43
211_34_10_11_Petrophysical_Report	pdf	9.10
211_34_10_11_Repeat_Formation_Tester	pdf	0.30
211_34_10_11_Reservoir_Fluid_Study	pdf	0.40
211_34_10_11_Special_Core_Analysis_Study	pdf	0.10
211_34_10_11_Well_Test_Report	pdf	7.35

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	2018	2028	9.5
2.0	1891	1896	9.5

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0				
2.0				

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	404	61171000	0.840	0.647	847
2.0	397	67402000	0.830	0.656	

Logs

Log type	Log top depth [m]	Log bottom depth [m]
BGT GR	459	1445
CBL	255	2116
CBL VDL	1843	2155
DLL MSFL GR	1830	2157
FDC CNL GR CAL	315	2158
GEODIP	1860	2100
HDT DIP	1713	2158
ISF SON GR SP	315	2156
LSS GR	1814	2156
NGS	1713	2158
WAVEFORM	1814	2156

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	315.0	36	316.0	0.00	LOT
SURF.COND.	20	459.0	26	463.0	1.50	LOT
LINER	16	1100.0	22	1100.0	1.60	LOT
INTERM.	13 3/8	1438.0	17 1/2	1445.0	1.77	LOT
INTERM.	9 5/8	1715.0	12 1/4	1720.0	1.93	LOT
LINER	7	2155.0	8 1/2	2155.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
525	1.11	48.0		waterbased	
1300	1.25	51.0		waterbased	
1410	1.37	49.0		waterbased	
1525	1.55	55.0		waterbased	
1760	1.82	51.0		waterbased	
1950	1.86	55.0		waterbased	

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]
211_Formation_pressure_(Formasjonstrykk)	pdf	0.19