

**General information**

Wellbore name	34/10-7
Type	EXPLORATION
Purpose	APPRAISAL
Status	SUSPENDED
Factmaps in new window	link to map
Main area	NORTH SEA
Field	GULLFAKS
Discovery	34/10-1 Gullfaks
Well name	34/10-7
Seismic location	S 30-180 SP 328
Production licence	050
Drilling operator	Den norske stats oljeselskap a.s
Drill permit	237-L
Drilling facility	ROSS RIG (1)
Drilling days	77
Entered date	07.01.1980
Completed date	23.03.1980
Release date	23.03.1982
Publication date	14.11.2012
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL
Discovery wellbore	NO
1st level with HC, age	EARLY JURASSIC
1st level with HC, formation	COOK FM
2nd level with HC, age	EARLY JURASSIC
2nd level with HC, formation	STATFJORD GP
Kelly bushing elevation [m]	25.0
Water depth [m]	204.0
Total depth (MD) [m RKB]	2250.0
Final vertical depth (TVD) [m RKB]	2250.0
Maximum inclination [°]	1.5
Bottom hole temperature [°C]	90
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	LUNDE FM
Geodetic datum	ED50
NS degrees	61° 12' 13.44" N
EW degrees	2° 16' 28.56" E



NS UTM [m]	6785858.02
EW UTM [m]	461016.27
UTM zone	31
NPDID wellbore	222

Wellbore history

General

Well 34/10-7 was drilled on the eastern segment of the Gullfaks Field. The primary objective was to test sandstones of Middle Jurassic age. Secondary objective was sandstones of Early Jurassic age: the Cook and the Statfjord Formations.

Operations and results

Appraisal well 34/10 7 was spudded with the semi-submersible installation Ross Rig on 7 January 1980 and drilled to TD at 2550 m in the Late Triassic Lunde Formation. Two major problems were encountered during drilling. The first one concerned water sensitive clays which caused difficulties when underreaming the hole for both the 16" liner and the 13 3/8" casing. The second problem was the leak off test below the 9 5/8" casing shoe. While circulating prior the second leak off test the formation broke down. Four cement squeezes were required before a proper formation test was obtained. The well was drilled with spud mud down to 845 m and with gel/lignosulphonate mud from 845 m to TD.

Weak to good oil shows were recorded from 1320 m in the lower Hordaland Group and downwards, mostly in limestone. Strong shows with live oil in the mud were recorded between 1380 and 1415 m. Oil shows of variable strength continued all the way down through the Hordaland, Rogaland and Shetland Groups. The Shetland Group was found resting directly on the Early Jurassic Cook Formation sandstone at 1810 m. Oil was found in sandstones of the Cook and Statfjord Formations. No oil/water contact was observed in the Cook Formation. In the Statfjord Formation an oil water contact was found at 2066 m.

A total 53.2 m core (67% recovery) was recovered in 5 cores in the interval from 1813 m to 1892 m. A sixth core was taken with 100% recovery from 1942 to 1949 m. RFT fluid samples were taken at 1821 m in the Cook Formation and at 2055 m in the Statfjord Formation.

The well was suspended on 23 March 1980 as an oil appraisal well.

Testing

One drill stem test was performed from perforation at 1858 - 1856 m in the Cook Formation. The test produced 471 Sm³ oil and 59200 Sm³ gas /day through a 40/64" choke. The GOR was 126 Sm³/Sm³, the oil density was 0.832 g/cm³, and the gas gravity was 0.68 (air = 1) with 0.5% CO₂. The maximum temperature at perforation depth was 77.7 deg C.

**Cuttings at the Norwegian Offshore Directorate**

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
294.00	2248.00

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	1813.0	1819.0	[m]
2	1821.0	1839.0	[m]
3	1839.0	1853.7	[m]
4	1857.0	1865.0	[m]
5	1875.0	1882.2	[m]
6	1942.0	1949.6	[m]

Total core sample length [m]	61.5
Cores available for sampling?	YES

Core photos

1813-1815m



1815-1818m



1818-1819m



1821-1823m



1823-1826m



1826-1829m



1829-1831m



1831-1834m



1834-1837m



1837-1839m





1839-1841m 1841-1844m 1844-1847m 1847-1849m 1849-1852m



1852-1853m



1857-1859m



1859-1862m



1862-1865m



1875-1877m



1877-1880m



1880-1882m

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		1833.00	1840.00			YES
DST	DST 1	1558.00	1865.00		17.03.1980 - 15:00	YES
DST	TEST2	1835.00	1865.00	OIL	01.07.1983 - 00:00	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
229	NORDLAND GP
895	UTSIRA FM
934	NO FORMAL NAME
965	HORDALAND GP
1015	NO FORMAL NAME
1063	NO FORMAL NAME
1100	NO FORMAL NAME
1130	NO FORMAL NAME
1180	NO FORMAL NAME



1308	NO FORMAL NAME
1515	ROGALAND GP
1515	BALDER FM
1568	LISTA FM
1666	SHETLAND GP
1666	JORSALFARE FM
1750	KYRRE FM
1810	DUNLIN GP
1810	COOK FM
1937	BURTON FM
1945	AMUNDSEN FM
2053	STATFJORD GP
2053	NANSEN FM
2140	RAUDE FM
2180	HEGRE GP
2180	LUNDE FM

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

Document name	Document format	Document size [MB]
222_01_WDSS_General_Information	pdf	0.13
222_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]
222_34_10_7_Completion_log	pdf	1.39
222_34_10_7_Completion_report	pdf	23.47
222_34_10_7_Composition_Single_Flash_Bubble_Point_Of_Reservoir_Fluid	pdf	0.44
222_34_10_7_Core_Analysis	pdf	0.44
222_34_10_7_Drilling_Completion_report	pdf	34.36
222_34_10_7_Facies_Description_of_core	pdf	0.31
222_34_10_7_Paleontological_Report	pdf	2.83
222_34_10_7_Paleontological_Study	pdf	0.69
222_34_10_7_Petrophysical_Eval_Cook_Statfjord	pdf	2.75





222 34 10 7 PVT Analysis Of Bottom Hole Sample	pdf	0.89
222 34 10 7 Reservoir Fluid Study	pdf	0.05
222 34 10 7 Reservoir Fluid Study Sep80	pdf	0.63
222 34 10 7 Source Rock Analyses partII	pdf	0.30
222 34 10 7 Source Rock Analysis	pdf	0.45
222 34 10 7 Special Core Description	pdf	1.96
222 34 10 7 Special Core Studies Comments	pdf	3.16
222 34 10 7 Special Core Studies Plug samples	pdf	4.49
222 34 10 7 Special Study Fluid Gas samples	pdf	0.22
222 34 10 7 TBP distillation Of Oil DST3	pdf	0.65
222 34 10 7 Well Testing Report DST2	pdf	2.51
222 34 10 7 Well Testing Report DST3	pdf	4.07
222 34 10 7 Well Test Report	pdf	1.42
222 34 10 7 Well Test report DST2 3	pdf	4.52

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	1833	1840	15.9

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

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	471		0.832		126

Logs

Log type	Log top depth [m]	Log bottom depth [m]
BGT	832	1572
CBL CCL GR	1299	1565
CBL VDL CCL GR	1100	1976





CCL	1243	1926
COMPUTED RØ RHGX PHIX	1699	2248
CYBERDIP	1692	2249
DLL MSFL GR	1692	1989
FDC CNL GR CAL	1685	2249
FDC GR CAL	832	1571
HDT	1692	2249
ISF SON GR SP	228	2248
LS SON	1800	1920
SON	1800	1920

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	291.0	36	292.0	0.00	LOT
SURF.COND.	20	823.0	26	845.0	1.51	LOT
LINER	16	1346.0	19 1/2	1415.0	1.77	LOT
INTERM.	13 3/8	1565.0	18	1572.0	1.90	LOT
INTERM.	9 5/8	1692.0	12 1/4	1700.0	2.02	LOT
LINER	7	1977.0	8 1/2	1990.0	2.05	LOT
OPEN HOLE		2250.0	6	2250.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
0	1.06	56.0		WATER BASED	
204	1.04	120.0		WATER BASED	
350	1.06	56.0		WATER BASED	
695	1.09	65.0		WATER BASED	
823	1.08	52.0		WATER BASED	
1146	1.11	51.0		WATER BASED	
1292	1.12	45.0		WATER BASED	
1390	1.35	75.0		WATER BASED	
1547	1.68	80.0		WATER BASED	
1675	1.75	64.0		WATER BASED	
1788	1.85	53.0		WATER BASED	

**Thin sections at the Norwegian Offshore Directorate**

Depth	Unit
1818.90	[m]
1818.00	[m]
1822.80	[m]
1823.10	[m]
1825.70	[m]
1828.70	[m]
1834.70	[m]
1838.70	[m]
1877.40	[m]
1849.10	[m]
1815.00	[m]
1823.00	[m]
1826.00	[m]
1833.00	[m]
1836.00	[m]
1845.00	[m]
1879.00	[m]

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]
222 Formation pressure (Formasjonstrykk)	pdf	0.20

