General information

Wellbore name	34/7-3
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	SNORRE
Discovery	34/4-1 Snorre
Well name	34/7-3
Seismic location	G/E - 153 SP. 440
Production licence	089
Drilling operator	Saga Petroleum ASA
Drill permit	436-L
Drilling facility	VILDKAT EXPLORER
Drilling days	111
Entered date	14.09.1984
Completed date	02.01.1985
Release date	02.01.1987
Publication date	01.04.2012
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	LATE TRIASSIC
2nd level with HC, formation	LUNDE FM
Kelly bushing elevation [m]	25.0
Water depth [m]	303.0
Total depth (MD) [m RKB]	3414.0
Final vertical depth (TVD) [m RKB]	3413.0
Maximum inclination [°]	2.8
Bottom hole temperature [°C]	113
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	LUNDE FM
Geodetic datum	ED50
NS degrees	61° 25' 54.08'' N
EW degrees	2° 7' 43.89'' E

NS UTM [m]	6811345.10
EW UTM [m]	453522.97
UTM zone	31
NPDID wellbore	442

Wellbore history

General

Well 34/7-3 was drilled on the Snorre E structure in the northern part of block 34/7. The purpose was to further appraise the reservoir potential of the Statfjord Formation and upper Lunde Formation in the E-structure extension of the Snorre Discovery and to test the oil/water contact found in wells 34/4-4 and 34/7-1.

Operations and results

Well 34/7-3 was spudded with the semi-submersible installation Vildcat Explorer on 14 September 1984 and drilled to TD at 3414 m in the Late Triassic Lunde Formation. Drilling proceeded without significant problems. The well was drilled with spud mud down to 454 m, with gel mud from 454 m to 1165 m, with KCl/Polymer mud from 1165 m to 2769 m, and with ligno/lignosulphonate mud from 2769 m to TD.

The well consisted mainly of claystones in the Tertiary and Cretaceous sections, with the exception of sand development in the Utsira Formation (Miocene), and an Early Oligocene sand development (1288 - 1323 m). The rest of the well, the Jurassic and Triassic sections, was mainly composed of alternating claystone/sandstone sequences. Top Statfjord was encountered at 2414 m.The Statfjord and Lunde Formations were oil filled down to a common OWC at 2610 m based on pressure gradients. Strong shows on cores continued down to 2622 m, below this depth the shows became weak and spotted. Apart from this oil shows, of variable quality, started in silty claystones at 2180 m in the Late Cretaceous and continued down to 2755 m in the Lunde Formation.

A total of 19 cores were taken in the interval 2396 - 2643 m in the Jurassic (Dunlin- and Statfjord Formations) and the Triassic sequence (Upper Lunde Formation). The core recovery was 91.5%. Core depth for core 17 was 0.5 m deeper than logger's depth and core depth for core 19 was 2.0 m shallower than logger's depth. Otherwise core depths were found equal to logger's depth. In addition to conventional cores 240 sidewall cores were recovered in this well. RFT fluid samples were taken at 2418 m (oil), 2475 m (oil/water/mud), and 2605 (water and mud filtrate with small amount of oil)

The well was permanently abandoned on 2 January 1985 as an oil appraisal well.

Testing

Three drill stem tests were carried out.

DST 1 tested the interval 2601.0 to 2607.5 m in the upper Lunde Formation. It produced 293 Sm3 oil/day through an 8 mm choke. The separator GOR was 28.5 Sm3/Sm3, the oil density was 0.840 g/cm3, and the gas gravity was . The down hole temperature measured in the test was 94.4 deg C.

DST 2 tested the interval 2505.0 to 2513 m in the Statfjord Formation. It produced 666 Sm3 oil/day through an 11 mm choke. The separator GOR was 26 Sm3/Sm3, the oil density was 0.836 g/cm3, and the gas gravity was . The down hole temperature measured in the test was 91.4 deg C

DST 3 tested the interval 2440.9 to 2449 m in the Statfjord Formation. It produced 1390 Sm3 oil/day through a 12.7 mm choke. The separator GOR was 32 Sm3/Sm3, the oil density was 0.838 g/cm3, and the gas gravity was . The down hole temperature measured in the test was 89.4 deg C.

All tests produced clean oil with no water or sand. The initial oil formation volume factor ranged from 1.23 m3 /Sm3 to 1.35 m3 /Sm3 in DST1 to DST3 test intervals respectively.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
460.00	3379.00

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	2396.0	2414.0	[m]
2	2414.0	2414.5	[m]
3	2414.5	2425.5	[m]
4	2425.5	2434.1	[m]
5	2439.0	2449.8	[m]
6	2450.0	2458.8	[m]
7	2459.5	2467.8	[m]
8	2469.0	2470.7	[m]
9	2471.0	2481.5	[m]
10	2481.5	2486.8	[m]
11	2487.5	2505.5	[m]
13	2506.5	2515.5	[m]
14	2515.5	2518.0	[m]
15	2519.0	2527.0	[m]
16	2527.5	2528.4	[m]
17	2549.5	2553.0	[m]
18	2606.0	2623.0	[m]
19	2625.0	2643.0	[m]

Total core sample length [m]	160.4
Cores available for sampling?	YES

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
1095.0	[m]	SWC	RRI
1125.0	[m]	SWC	RRI
1135.0	[m]	SWC	RRI
1155.0	[m]	SWC	RRI
1170.0	[m]	DC	RRI
1180.0	[m]	DC	RRI

1195.0	[m]	SWC	RRI
1220.0	[m]	DC	RRI
1235.0	[m]	SWC	RRI
1240.0	[m]	DC	RRI
1260.0	[m]	DC	RRI
1275.0	[m]	SWC	RRI
1290.0	[m]	DC	RRI
1300.0	[m]	DC	RRI
1330.0	[m]	DC	RRI
1360.0	[m]	DC	RRI
1380.0	[m]	DC	RRI
1395.0	[m]	SWC	RRI
1415.0	[m]	SWC	RRI
1425.0	[m]	DC	RRI
1440.0	[m]	DC	RRI
1455.0	[m]	SWC	RRI
1470.0	[m]	DC	RRI
1485.0	[m]	DC	RRI
1495.0	[m]	SWC	RRI
1515.0	[m]	DC	RRI
1535.0	[m]	SWC	RRI
1545.0	[m]	DC	RRI
1560.0	[m]	DC	RRI
1605.0	[m]	DC	RRI
1620.0	[m]	DC	RRI
1740.0	[m]	DC	RRI
1770.0	[m]	DC	RRI
1790.0	[m]	DC	RRI
1800.0	[m]	SWC	RRI
1828.0	[m]	SWC	RRI
1850.0	[m]	SWC	RRI
1860.0	[m]	DC	RRI
1875.0	[m]	SWC	RRI
1890.0	[m]	DC	RRI
1900.0	[m]	SWC	RRI
2240.0	[m]	SWC	RRI
2260.0	[m]	DC	RRI
2330.0	[m]	SWC	RRI
2355.1	[m]	SWC	RRI
2362.0	[m]	DC	RRI

2364.0	[m]	SWC	RRI
2380.0	[m]	SWC	RRI
2388.0	[m]	SWC	RRI
2396.0	[m]	C	RRI
2414.7	[m]	C	RRI
2429.2	[m]	C	RRI
2449.8	[m]	SWC	RRI
2452.3	[m]	C	RRI
2454.9	[m]	C	RRI
2656.0	[m]	DC	RRI
2671.0	[m]	DC	RRI
2683.0	[m]	DC	RRI
2884.0	[m]	DC	RRI

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	DST1	2601.00	2607.50		05.12.1984 - 06:07	YES
DST	DST3B	2440.90	2449.40	OIL	25.12.1984 - 22:10	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
328	NORDLAND GP
1123	UTSIRA FM
1133	HORDALAND GP
1288	NO FORMAL NAME
1323	NO FORMAL NAME
1672	ROGALAND GP
1672	BALDER FM
1688	LISTA FM
1831	SHETLAND GP
1831	JORSALFARE FM
1940	KYRRE FM
2353	CROMER KNOLL GP
2353	SOLA FM

2357	MIME FM
2363	DUNLIN GP
2363	AMUNDSEN FM
2414	STATFJORD GP
2513	HEGRE GP
2513	LUNDE FM

Geochemical information

Document name	Document format	Document size [MB]
442_1	pdf	1.43
442_2	pdf	1.73
442_3	pdf	0.71
442_4	pdf	0.19
442_5	pdf	2.90

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

Document name	Document format	Document size [MB]
442_01_WDSS_General_Information	pdf	0.30
442_02_WDSS_completion_log	pdf	0.26

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

Document name	Document format	Document size [MB]
442_34_7_3_COMPLETION_REPORT_AND_LOG	pdf	17.12

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	2601	2607	8.0
2.0	2505	2513	11.0
3.0	2441	2449	12.7

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0				
2.0				
3.0				

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	300	8400	0.840		28
2.0	680	17680	0.836		26
3.0	1370	43872	0.838		32

Logs

Log type	Log top depth [m]	Log bottom depth [m]
	0	0
BGL CAL GR	1153	1924
BGL GR	451	1158
CDR CAL GR	1152	1826
CDR CAL GR	1153	1924
CNL EPL PCT NGT	1921	2761
CNL GR	2752	3412
CST	0	0
DLL MSFL GR	2335	2764
GR	322	451
ISF LSS GR	451	1162
ISF LSS GR	1153	1923
ISF LSS MSFL GR	2752	3411
ISF MSFL BHC GR	1921	2543
LDL	1921	2767
LDL GR	451	1163
LDL GR	1153	1924
LDL NGL	2752	3412
RFT HP GR	1921	2543
RFT HP GR	1921	2768
RFT HP GR	2752	3413
SHDT GR	1921	2768
SHDT GR	2752	3413

VSP	451	3412

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	451.0	36	454.0	0.00	LOT
SURF.COND.	20	1153.0	26	1168.0	1.62	LOT
INTERM.	13 3/8	1922.0	17 1/2	1940.0	1.70	LOT
INTERM.	9 5/8	2753.0	12 1/4	2786.0	1.96	LOT
OPEN HOLE		3414.0	8 1/2	3414.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
354	1.03			WATER BASED	16.09.1984
652	1.07			WATER BASED	16.09.1984
1021	1.13	46.0	31.0	WATER BASED	17.09.1984
1165	1.19	45.0	30.0	WATER BASED	25.09.1984
1165	1.14	48.0	31.0	WATER BASED	20.09.1984
1165	1.19	45.0	30.0	WATER BASED	25.09.1984
1165	1.24	52.0	34.0	WATER BASED	25.09.1984
1165	1.26	53.0	35.0	WATER BASED	25.09.1984
1165	1.13	48.0	32.0	WATER BASED	20.09.1984
1165	1.14	48.0	31.0	WATER BASED	20.09.1984
1165	1.24	52.0	34.0	WATER BASED	25.09.1984
1165	1.26	53.0	35.0	WATER BASED	25.09.1984
1165	1.26	50.0	28.0	WATER BASED	25.09.1984
1165	1.26	50.0	28.0	WATER BASED	25.09.1984
1168	1.26	48.0	22.0	WATER BASED	25.09.1984
1168	1.13	44.0	10.0	WATER BASED	01.10.1984
1168	1.13	44.0	10.0	WATER BASED	01.10.1984
1430	1.13	44.0	10.0	WATER BASED	01.10.1984
1575	1.28	50.0	20.0	WATER BASED	01.10.1984
1860	1.37	50.0	20.0	WATER BASED	03.10.1984
1940	1.46	55.0	19.0	WATER BASED	03.10.1984
1940	1.50	59.0	20.0	WATER BASED	04.10.1984
1940	1.50	54.0	18.0	WATER BASED	07.10.1984

1940	1.50	58.0	20.0	WATER BASED	07.10.1984
1940	1.50	59.0	20.0	WATER BASED	04.10.1984
1940	1.50	54.0	18.0	WATER BASED	07.10.1984
1940	1.50	58.0	20.0	WATER BASED	07.10.1984
1945	1.50	55.0	18.0	WATER BASED	07.10.1984
2214	1.67	17.0	18.0	WATER BASED	11.10.1984
2309	1.68	21.0	18.0	WATER BASED	14.10.1984
2376	1.73	24.0	15.0	WATER BASED	14.10.1984
2396	1.73	24.0	15.0	WATER BASED	14.10.1984
2428	1.70	23.0	14.0	WATER BASED	31.10.1984
2428	1.70	24.0	14.0	WATER BASED	01.11.1984
2428	1.70	24.0	14.0	WATER BASED	01.11.1984
2611	1.70	24.0	16.0	WATER BASED	02.11.1984
2699	1.70	52.0	16.0	WATER BASED	03.12.1984
2699	1.70	52.0	16.0	WATER BASED	03.12.1984
2699	1.61	70.0	20.0	WATER BASED	03.12.1984
2786	1.63	20.0	14.0	WATER BASED	15.11.1984
2846	1.61	20.0	14.0	WATER BASED	19.11.1984
2934	1.61	70.0	20.0	WATER BASED	03.12.1984
3034	1.61	19.0	14.0	WATER BASED	19.11.1984
3197	1.61	19.0	14.0	WATER BASED	21.11.1984
3318	1.61	63.0	12.0	WATER BASED	21.11.1984
3372	1.61	63.0	12.0	WATER BASED	23.11.1984
3414	1.61	67.0	12.0	WATER BASED	26.11.1984
3414	1.61	69.0	12.0	WATER BASED	26.11.1984
3414	1.61	70.0	10.0	WATER BASED	27.11.1984
3414	1.61	70.0	10.0	WATER BASED	29.11.1984
3414	1.61	65.0	12.0	WATER BASED	26.11.1984
3414	1.61	69.0	10.0	WATER BASED	27.11.1984
3414	1.61	67.0	12.0	WATER BASED	26.11.1984
3414	1.61	69.0	12.0	WATER BASED	26.11.1984
3414	1.61	69.0	10.0	WATER BASED	27.11.1984
3414	1.61	70.0	10.0	WATER BASED	29.11.1984
3414	1.61	70.0	10.0	WATER BASED	27.11.1984

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]
442_Formation_pressure_(Formasjonstrykk)	pdf	0.22