

**General information**

Wellbore name	34/8-10 S
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	VISUND
Discovery	34/8-1 Visund
Well name	34/8-10
Seismic location	NH-9001-3D:ROW 770 & COLUMN 658
Production licence	120
Drilling operator	Norsk Hydro Produksjon AS
Drill permit	768-L
Drilling facility	POLAR PIONEER
Drilling days	73
Entered date	28.09.1993
Completed date	09.12.1993
Release date	09.12.1995
Publication date	10.01.2012
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL
Discovery wellbore	NO
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	BRENT GP
2nd level with HC, age	EARLY JURASSIC
2nd level with HC, formation	DUNLIN GP
3rd level with HC, age	LATE TRIASSIC
3rd level with HC, formation	LUNDE FM
Kelly bushing elevation [m]	23.0
Water depth [m]	326.0
Total depth (MD) [m RKB]	3470.0
Final vertical depth (TVD) [m RKB]	3316.0
Maximum inclination [°]	44.8
Bottom hole temperature [°C]	122
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	LUNDE FM
Geodetic datum	ED50



NS degrees	61° 21' 17.3" N
EW degrees	2° 27' 19.5" E
NS UTM [m]	6802591.77
EW UTM [m]	470873.63
UTM zone	31
NPDID wellbore	2179

Wellbore history

General

Well 34/8-10 S was drilled to appraise the 34/8-1 Visund discovery on Tampen Spur in the Northern North Sea. The objectives were to confirm the presence of mobile hydrocarbons and the pressure regime in the SI segment (Statfjord Formation); to confirm the absence of free gas cap and also pressure regime and fluid composition in the NI segment (Brent Group); to improve stratigraphic control of base Cretaceous, the A-Central Fault, top Statfjord and top Lunde; and to characterise the Lunde B/C aquifer and pressure regime.

Operations and results

Appraisal well 34/8-10 S was spudded with the semi-submersible installation Polar Pioneer on 28 September 1993 and drilled to TD at 3470 m (3316 m TVD) in the Late Triassic Lunde Formation. The well was drilled with an angle of 37 degrees through the reservoir to achieve the objectives. It was drilled with seawater and hi-vis pills down to 1358 m, and with Anco 2000 glycol mud from 1358 m to TD.

The well penetrated oil-bearing sandstones in all the potential reservoirs: Brent-NI, Amundsen-SI, Statfjord-SI and Lunde-SI. The Brent Group was penetrated at 2879.5 m in a heavily faulted area. It was represented by the Rannoch Formation from 2879.5 to 2885 m and by Etive Formation from 2888 to 2896.5 m with a fault slice identified as Drake Formation in between (2885-2888 m). A gross reservoir thickness of 14 m was defined, giving a net pay of 10 m. The pressure in the Brent Group was found to be higher than previously documented, and in addition the oil was of a lighter composition. No free gas cap was found in the Brent sandstones.

The Amundsen Sandstone was not expected to be penetrated as the well was planned to cut the A-Central fault very close to the Statfjord Formation. However, the well showed that top Statfjord was about 20 m deeper and the A-Central fault about 50 m further to the east than prognosed. The Amundsen Sandstone member was encountered from 2993 m to 3006 m. Core and wire line log data confirm this unit as oil-bearing with a gross reservoir thickness of 12.5m giving a net pay of 11.5m.

Good oil shows were observed in the Rannoch and Etive Formations from 2877 to 2893m. Poor to moderate shows were seen from 2919 to 3018 m on sandstones of Dunlin Group. Good to very good shows were observed in the Statfjord Formation from 3036 - 3122 m. Poor to moderate shows were seen in the Lunde A and B/C sandstones from 3141 to 3256 m (ODT) and below 3255 m residual shows were observed. The Statfjord Formation was encountered at 3038.5 m, and was cored all through. Wire line logs and core data show the presence of oil in Statfjord sandstones with a net thickness of sand of 60 m and a net pay of 56.5 m

Lunde A Formation was penetrated from 3125 to 3243 m and Lunde B/C from 3243 m to TD. Core and wire line data proved Lunde to be oil-bearing down to 3256 m (ODT) in this well with a net sand thickness of 52.5 m and a net pay of 8.5 m.



All in all, 203 m core was cut in 23 cores at different intervals throughout the well. MDT fluid samples were taken at 1951.8 m, 2891.5 m, 3002.8 m, and at 3255.0 m

The well was permanently abandoned on 9.December 1993 as an oil appraisal well.

Testing

A production test (Test no 1) was performed in the intervals 3039 - 3052 m and 3062-3087.5 m (2983 - 3021 m TVD all across) in the Statfjord Formation sandstones. A 5 day main flow period produced 1180 Sm³ oil and 414000 Sm³ gas/day with a FWHP of 210.4 bar and a GOR of 350 Sm³/Sm³ through a 44/64" fixed choke with an average permeability of 1370 mD. The density of oil was recorded as 0.82 g/cc, while the gas gravity was 0.755 (air = 1) 1.4% CO₂ and 2.6 ppm H₂S. The temperature measured in the flow was 114 deg C.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
1370.00	3470.00

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	1924.0	1925.8	[m]
2	1926.0	1941.5	[m]
3	2874.0	2878.1	[m]
4	2880.0	2884.7	[m]
5	2884.7	2894.9	[m]
6	2894.9	2897.4	[m]
7	2913.5	2917.4	[m]
8	2917.4	2919.4	[m]
9	2922.0	2924.8	[m]
10	2996.0	3002.2	[m]
11	3002.2	3029.9	[m]
12	3029.9	3042.0	[m]
13	3042.0	3053.6	[m]
14	3053.6	3058.6	[m]
15	3058.6	3083.4	[m]



16	3084.5	3085.6	[m]
17	3086.5	3097.2	[m]
18	3097.5	3111.4	[m]
19	3114.6	3122.8	[m]
20	3122.8	3123.8	[m]
21	3124.0	3129.3	[m]
22	3130.5	3147.0	[m]
23	3270.0	3281.6	[m]

Total core sample length [m]	203.2
Cores available for sampling?	YES

Core photos



1924-1925m



1926-1930m



1930-1934m



1934-1938m



1938-1941m



2874-2878m



2880-2884m



2884-2889m



2889-2894m



2894-2895m



2894-2897m



2913-2917m



2917-2919m



2922-2924m



2996-3001m



3001-3002m



3002-3007m



3007-3012m



3012-3017m



3017-3022m



3022-3027m



3027-3029m



3029-3034m



3034-3039m



3039-3042m



3042-3047m



3047-3052m



3052-3053m



3053-3058m



3058-3059m



3058-3063m



3063-3068m



3068-3073m



3073-3078m



3078-3083m



3083-3084m



3084-3085m



3086-3091m



3091-3096m



3096-3097m



3097-3102m



3102-3107m



3107-3111m



3114-3119m



3119-3122m



3122-3123m



3124-3129m



3129-3130m



3130-3135m



3135-3140m



3140-3145m



3145-3147m



3270-3275m



3275-3280m



3280-3282m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
1370.0	[m]	DC	SPT
1390.0	[m]	DC	SPT
1410.0	[m]	DC	SPT
1430.0	[m]	DC	SPT
1450.0	[m]	DC	SPT
1500.0	[m]	DC	SPT
1520.0	[m]	DC	SPT
1540.0	[m]	DC	SPT
1580.0	[m]	DC	SPT
1600.0	[m]	DC	SPT
1620.0	[m]	DC	SPT
1640.0	[m]	DC	SPT
1660.0	[m]	DC	SPT
1670.0	[m]	DC	SPT
1726.0	[m]	SWC	SPT
1740.0	[m]	DC	SPT
1760.0	[m]	DC	SPT
1780.0	[m]	DC	SPT
1800.0	[m]	DC	SPT
1820.0	[m]	DC	SPT
1840.0	[m]	DC	SPT
1880.0	[m]	DC	SPT
1900.0	[m]	DC	SPT
1920.0	[m]	DC	SPT
1924.0	[m]	C	SPT
1936.0	[m]	C	SPT
1941.5	[m]	C	SPT
1953.0	[m]	SWC	SPT



1957.3	[m]	SWC	SPT
1966.0	[m]	SWC	SPT
2030.0	[m]	DC	SPT
2060.0	[m]	DC	SPT
2080.0	[m]	DC	SPT
2100.0	[m]	DC	SPT
2120.0	[m]	DC	SPT
2140.0	[m]	DC	SPT
2160.0	[m]	DC	SPT
2180.0	[m]	DC	SPT
2220.0	[m]	DC	SPT
2260.0	[m]	DC	SPT
2280.0	[m]	DC	SPT
2300.0	[m]	DC	SPT
2560.0	[m]	DC	SPT
2628.0	[m]	SWC	SPT
2650.0	[m]	SWC	SPT
2669.0	[m]	SWC	SPT
2700.0	[m]	SWC	SPT
2724.0	[m]	SWC	SPT
2750.0	[m]	SWC	SPT
2870.0	[m]	SWC	SPT
2872.0	[m]	DC	SPT
2875.3	[m]	C	SPT
2875.5	[m]	C	SPT
2876.2	[m]	C	SPT
2876.7	[m]	C	SPT
2877.3	[m]	C	SPT
2882.0	[m]	DC	SPT
2883.0	[m]	C	SPT
2894.9	[m]	C	SPT
2896.0	[m]	C	SPT
2896.6	[m]	C	SPT
2897.4	[m]	C	SPT
2914.0	[m]	C	SPT
2916.0	[m]	C	SPT
2923.0	[m]	C	SPT
2930.0	[m]	SWC	SPT
2940.0	[m]	SWC	SPT
2944.0	[m]	SWC	SPT



2952.0	[m]	SWC	SPT
2954.0	[m]	SWC	SPT
2959.0	[m]	SWC	SPT
2964.0	[m]	SWC	SPT
2971.0	[m]	SWC	SPT
2978.0	[m]	SWC	SPT
3033.0	[m]	C	SPT
3050.0	[m]	C	SPT
3056.0	[m]	C	SPT
3058.0	[m]	C	SPT
3122.8	[m]	C	SPT
3312.0	[m]	DC	SPT
3460.0	[m]	DC	SPT
3470.0	[m]	DC	SPT

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	0.00	0.00		24.11.1993 - 05:20	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
349	NORDLAND GP
1081	UTSIRA FM
1109	NO FORMAL NAME
1145	HORDALAND GP
1552	NO FORMAL NAME
1580	NO FORMAL NAME
1636	NO FORMAL NAME
1655	NO FORMAL NAME
1815	ROGALAND GP
1815	BALDER FM
1854	LISTA FM
1950	NO FORMAL NAME
1971	LISTA FM



1994	SHETLAND GP
1994	JORSALFARE FM
2220	KYRRE FM
2838	TRYGGVASON FM
2843	BLODØKS FM
2850	SVARTE FM
2871	CROMER KNOLL GP
2871	ÅSGARD FM
2879	BRENT GP
2879	RANNOCH FM
2885	DUNLIN GP
2885	DRAKE FM
2888	BRENT GP
2888	ETIVE FM
2897	UNDIFFERENTIATED
2932	DUNLIN GP
2932	COOK FM
2939	BURTON FM
2972	AMUNDSEN FM
3039	STATEFJORD GP
3125	HEGRE GP
3125	LUNDE FM

Geochemical information

Document name	Document format	Document size [MB]
2179_1	pdf	0.29
2179_2	pdf	1.43
2179_3	pdf	0.75

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

Document name	Document format	Document size [MB]
2179_34_8_10_S_COMPLETION_REPORT_AND_LOG	pdf	24.49

Drill stem tests (DST)





Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	3039	3052	17.4

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0				114

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	1180	414000	0.823	0.755	350

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL VDL	1500	3385
CST GR	1419	2240
CST GR	2628	3254
DLL MSFL EPT LSS NGT SP AMS	2554	3472
DLL MSFL LDL CNL LSS GR SP AMS	434	1360
DLL MSFL LDL CNL LSS NGT SP AMS	1348	2560
FMI GR ACTS	2554	3472
LDL CNL GR	2554	3472
MDT GR AMS	1952	1968
MDT GR AMS	2995	3082
MDT GR AMS	3255	3255
MWD - GR RES DIR	361	1353
MWD DPR - GR RES DIR	1353	3470
VSP	740	2550
VSP	2280	3410

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	434.0	36	434.0	0.00	LOT



INTERM.	13 3/8	1348.0	17 1/2	1358.0	1.69	LOT
INTERM.	9 5/8	2552.0	12 1/4	2560.0	1.88	LOT
LINER	7	3468.0	8 1/2	3470.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
390	1.60	22.0	9.5	WATER BASED	09.12.1993
434	1.05			WATER BASED	30.09.1993
1110	1.62	23.0	9.5	WATER BASED	08.12.1993
1358	1.20			WATER BASED	30.09.1993
1358	1.20			WATER BASED	01.10.1993
1358	1.20			WATER BASED	04.10.1993
1358	1.20			WATER BASED	04.10.1993
1633	1.40	17.0	13.5	WATER BASED	04.10.1993
1900	1.42	16.0	16.0	WATER BASED	06.10.1993
2202	1.50	24.0	17.5	WATER BASED	07.10.1993
2560	1.50	25.0	16.0	WATER BASED	11.10.1993
2560	1.50	23.0	12.0	WATER BASED	11.10.1993
2560	1.51	20.0	11.0	WATER BASED	12.10.1993
2560	1.50	23.0	16.0	WATER BASED	08.10.1993
2560	1.52	22.0	17.0	WATER BASED	11.10.1993
2571	1.50	18.0	11.0	WATER BASED	13.10.1993
2653	1.50	26.0	15.0	WATER BASED	14.10.1993
2741	1.61	27.0	15.0	WATER BASED	18.10.1993
2818	1.65	38.0	16.0	WATER BASED	18.10.1993
2874	1.70	33.0	13.0	WATER BASED	18.10.1993
2885	1.70	34.0	12.0	WATER BASED	19.10.1993
2900	1.70	31.0	14.0	WATER BASED	20.10.1993
2923	1.69	32.0	13.0	WATER BASED	22.10.1993
2940	1.69	33.0	14.0	WATER BASED	25.10.1993
2990	1.69	29.0	13.0	WATER BASED	25.10.1993
3010	1.69	28.0	13.0	WATER BASED	26.10.1993
3015	1.69	28.0	13.0	WATER BASED	25.10.1993
3042	1.69	31.0	14.0	WATER BASED	27.10.1993
3059	1.68	35.0	15.0	WATER BASED	28.10.1993
3085	1.68	35.0	15.0	WATER BASED	01.11.1993
3090	1.69	37.0	15.0	WATER BASED	01.11.1993



3123	1.69	35.0	16.0	WATER BASED	01.11.1993
3130	1.69	35.0	15.0	WATER BASED	01.11.1993
3147	1.70	33.0	14.0	WATER BASED	02.11.1993
3270	1.68	37.0	16.0	WATER BASED	03.11.1993
3281	1.68	38.0	16.0	WATER BASED	04.11.1993
3281	1.68	38.0	16.0	WATER BASED	08.11.1993
3409	1.66	32.0	7.5	WATER BASED	01.12.1993
3470	1.66	25.0	7.0	WATER BASED	06.12.1993
3470	1.66	25.0	7.0	WATER BASED	06.12.1993
3470	1.66	25.0	7.0	WATER BASED	06.12.1993
3470	1.60	19.0	7.0	WATER BASED	07.12.1993
3470	1.68	33.0	13.0	WATER BASED	08.11.1993
3470	1.66	29.0	7.5	WATER BASED	22.11.1993
3470	1.66	27.0	5.5	WATER BASED	02.12.1993
3470	1.66	26.0	6.0	WATER BASED	06.12.1993
3470	1.66	25.0	6.5	WATER BASED	06.12.1993
3470	1.68	34.0	14.0	WATER BASED	08.11.1993
3470	1.68	33.0	14.0	WATER BASED	08.11.1993
3470	1.68	33.0	13.0	WATER BASED	09.11.1993
3470	1.68	38.0	13.0	WATER BASED	11.11.1993
3470	1.68	35.0	13.0	WATER BASED	12.11.1993
3470	1.68	37.0	14.0	WATER BASED	12.11.1993
3470	1.68	367.0	17.0	WATER BASED	16.11.1993
3470	1.68	367.0	17.0	WATER BASED	16.11.1993
3470	1.66	27.0	8.0	WATER BASED	16.11.1993
3470	1.66	28.0	8.5	WATER BASED	16.11.1993
3470	1.66	28.0	8.5	WATER BASED	17.11.1993
3470	1.66	28.0	7.5	WATER BASED	18.11.1993
3470	1.66	28.0	7.5	WATER BASED	19.11.1993
3470	1.65	29.0	7.0	WATER BASED	22.11.1993
3470	1.66	29.0	7.0	WATER BASED	22.11.1993
3470	1.66	30.0	6.0	WATER BASED	23.11.1993
3470	1.66	29.0	7.0	WATER BASED	24.11.1993
3470	1.66	29.0	7.0	WATER BASED	25.11.1993
3470	1.66	29.0	7.0	WATER BASED	26.11.1993
3470	1.66	29.0	7.0	WATER BASED	30.11.1993
3470	1.66	25.0	7.5	WATER BASED	30.11.1993

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]
2179 Formation pressure (Formasjonstrykk)	pdf	0.22

