



General information





Wellbore name	34/7-13
Type	EXPLORATION
Purpose	APPRAISAL
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	VIGDIS
Discovery	34/7-8 Vigdis
Well name	34/7-13
Seismic location	E 86 (3D) ROW 438 COL. 1410
Production licence	089
Drilling operator	Saga Petroleum ASA
Drill permit	572-L
Drilling facility	TREASURE SAGA
Drilling days	55
Entered date	19.02.1988
Completed date	13.04.1988
Release date	13.04.1990
Publication date	28.02.2008
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	NO
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	ETIVE FM
Kelly bushing elevation [m]	26.0
Water depth [m]	282.0
Total depth (MD) [m RKB]	2994.0
Maximum inclination [°]	21
Bottom hole temperature [°C]	103
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	LUNDE FM
Geodetic datum	ED50
NS degrees	61° 24' 19.23" N
EW degrees	2° 3' 12.49" E
NS UTM [m]	6808466.37
EW UTM [m]	449458.44
UTM zone	31
NPDID wellbore	1233



Wellbore history

**General**

Well 34/7-13 was drilled in the north western part of block 34/7 on the Snorre West prospect. The prospect is divided into two main fault segments by a SW NE trending fault with a throw of 60 m. The well was located in the southern part of the two segments. The primary purposes of the well were to explore the Snorre West prospect and to test a possible extension of the Statfjord East Field in a northward direction. The main target of the well was sandstones of the Middle Jurassic Brent Group. Secondary target was sandstones of the Early Jurassic Statfjord Formation.

Operations and results

Wildcat well 34/7-13 was spudded with the semi-submersible installation Treasure Saga on 19 February 1988 and drilled to TD at 2994 m in the Late Triassic Lunde Formation. Drilling proceeded without significant problems, but up to 21 deg deviation in the deepest section of the well caused 11 m deviation between MD and TVD at TD. Shallow gas was encountered at 459 m, but it did not cause any technical problems. The well was drilled with spud mud down to 434, with Gel mud from 434 m to 973 m, with KCl mud from 973 m to 2682 m, and with gel mud from 2682 m to TD.

Above the Jurassic the well penetrated mainly claystones with the exception of the Utsira Formation and some sandstone intervals between 1265 and 1325 m in the Hordaland Group. The Jurassic comprised the Middle Jurassic Brent Group, and the Early Jurassic Dunlin Group and Statfjord Formation. The Triassic comprised the Late Triassic upper Lunde Formation. The sandstones of the Brent Group, the Etive Formation, were encountered at 2492.5 m (TVD: 2490 m). The Etive Formation proved oil bearing, and the OWC was calculated to be at 2505.5 m (TVD: 2503 m). This was a thinner oil column than prognosed and the resources for the prospect were thus reduced compared to what was expected.

The sandstones of the Statfjord Formation proved water bearing.

First sign of petroleum hydrocarbons (C2 - C3) were reported at 2260 m. From 2285 m weak oil shows were seen in sand stringers. Over the reservoir and down to approximately 2510 m good oil shows were observed. Below 2510 m oil shows got weaker but traces were seen down to 2590 m.

Five cores were cut in the interval 2496 - 2587.8 m. A total of 5 cores were cut throughout this section with 99 % recovery. A sixth core was cut from 2873 to 2890.5 m in the Statfjord Formation. FMT samples were taken at 2493.4 m (oil), 2494.4 m (oil), and 2503.7 m (water contaminated with mud filtrate). Single stage flash of the sample from 2493.4 m gave a GOR of 84.3 Sm³/Sm³, an oil density of 0.8392 g/cm³, and a gas gravity of 0.925 (air = 1).

The well was permanently abandoned on 13 April 1988. It is classified as an oil appraisal on the Vigdis Discovery.

Testing

One DST was performed in the interval 2498.1 - 2501.1 m in the Etive Formation. At the end of a 6.8 hours flow period, "Formation characteristics flow", the well produced 935 Sm³/day of oil with a GOR of 49 Sm³/Sm³ through an 11.1 mm choke. In the beginning of the main flow period the maximum recorded oil rate was 1350 Sm³/day through a 16 mm choke. The GOR in this flow was 51 Sm³/Sm³ and the oil density was 0.840 g/cm³. At the end of the main flow the well produced with 30-35% water cut. Sand production was also observed. Maximum down-hole temperature in the test (measured during main flow) was 90 deg C.

A second DST was omitted due to problems caused by sand production.

**Cuttings at the Norwegian Offshore Directorate**

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
440.00	2994.00

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	2496.0	2500.0	[m]
2	2500.0	2515.3	[m]
3	2515.5	2532.0	[m]
4	2532.0	2559.6	[m]
5	2560.0	2587.7	[m]
6	2873.0	2889.9	[m]

Total core sample length [m]	108.0
Cores available for sampling?	YES

Core photos

2496-2500m



2500-2505m



2505-2510m



2510-2515m



2515-2515m



2515-2510m



2520-2525m



2525-2530m



2530-2532m



2532-2537m



2537-2542m



2542-2547m



2547-2552m



2552-2557m



2557-2559m



2560-2565m



2565-2570m



2570-2575m



2575-2580m



2575-2580m



2580-2585m



2585-2587m



2873-2878m



2878-2883m



2883-2888m



2888-2890m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
2696.3	[m]	C	OD
2696.5	[m]	C	OD

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	DST1,1	2504.00	2500.00		05.04.1988 - 14:50	YES

**Lithostratigraphy**

Top depth [mMD RKB]	Lithostrat. unit
308	NORDLAND GP
1073	UTSIRA FM
1085	HORDALAND GP
1267	NO FORMAL NAME
1323	NO FORMAL NAME
1670	ROGALAND GP
1670	BALDER FM
1724	LISTA FM
1852	SHETLAND GP
1852	JORSALFARE FM
2097	KYRRE FM
2478	CROMER KNOLL GP
2478	RØDBY FM
2485	MIME FM
2493	BRENT GP
2493	ETIVE FM
2523	RANNOCH FM
2598	BROOM FM
2600	DUNLIN GP
2600	DRAKE FM
2670	COOK FM
2742	BURTON FM
2758	AMUNDSEN FM
2859	STATFJORD GP
2962	HEGRE GP
2962	LUNDE FM

Geochemical information

Document name	Document format	Document size [MB]
1233_1	pdf	0.29
1233_2	pdf	1.25



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

Document name	Document format	Document size [MB]
1233_01_WDSS_General_Information	pdf	0.24
1233_02_WDSS_completion_log	pdf	0.23

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

Document name	Document format	Document size [MB]
1233_34_7_13_COMPLETION_REPORT_AND_LOG	pdf	12.67

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	2501	2504	16.0

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0	34.000		15.000	88

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	1350	68850	0.840		51

Logs

Log type	Log top depth [m]	Log bottom depth [m]
CBL VDL GR	750	1842
CBL VDL GR	1000	2664
CBL VDL GR	2370	2550
CNL CDL GR	1842	2682
CNL CDL GR	2664	2992
COREGUN	0	0





COREGUN	2496	2587
COREGUN	2873	2890
DIFL LS BHC GR	957	1855
DIFL LS BHC GR	1842	2681
DIFL LS BHC GR	2664	2993
DIPLOG	2300	2678
DIPLOG	2667	2993
DLL GR	2300	2600
FMT	2494	2563
FMT	2876	2960
MWD DLWD - GR RES DIR TEMP	434	2994
VSP	1115	2990

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	429.0	36	429.0	0.00	LOT
SURF.COND.	20	957.0	26	973.0	1.59	LOT
INTERM.	13 3/8	1843.0	17 1/2	1875.0	1.81	LOT
INTERM.	9 5/8	2667.0	12 1/4	2682.0	2.03	LOT
OPEN HOLE		2994.0	8 1/2	2994.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
434	1.05			WATER BASED	25.03.1988
507	1.12	5.0	12.0	WATER BASED	25.03.1988
890	1.16	4.0	7.7	WATER BASED	24.02.1988
970	1.16			WATER BASED	25.03.1988
970	1.16	4.0	7.2	WATER BASED	25.02.1988
973	1.12	21.0	13.9	WATER BASED	02.03.1988
973	1.14	4.0	6.8	WATER BASED	24.02.1988
1348	1.13	20.0	9.6	WATER BASED	02.03.1988
1479	1.25	23.0	10.1	WATER BASED	02.03.1988
1681	1.45	26.0	11.5	WATER BASED	03.03.1988
1875	1.50	33.0	13.5	WATER BASED	03.03.1988
1875	1.50	33.0	13.5	WATER BASED	04.03.1988



1875	1.50	32.0	11.5	WATER BASED	07.03.1988
1875	1.50	32.0	12.5	WATER BASED	07.03.1988
1875	1.50	33.0	13.5	WATER BASED	07.03.1988
1875	1.50	31.0	12.0	WATER BASED	08.03.1988
1992	1.55	30.0	10.6	WATER BASED	14.03.1988
2100	1.61	27.0	6.3	WATER BASED	25.03.1988
2100	1.61	27.0	6.3	WATER BASED	28.03.1988
2100	1.64	26.0	7.7	WATER BASED	16.03.1988
2100	1.61	20.0	4.8	WATER BASED	18.03.1988
2100	1.61	25.0	6.3	WATER BASED	22.03.1988
2100	1.61	27.0	6.3	WATER BASED	24.03.1988
2100	1.61	24.0	5.8	WATER BASED	18.03.1988
2100	1.61	20.0	6.3	WATER BASED	21.03.1988
2100	1.61	27.0	5.8	WATER BASED	25.03.1988
2106	1.60	35.0	9.1	WATER BASED	14.03.1988
2232	1.60	33.0	8.2	WATER BASED	14.03.1988
2404	1.65	28.0	7.7	WATER BASED	15.03.1988
2470	1.50	15.0	3.9	WATER BASED	11.04.1988
2492	1.50	16.0	4.4	WATER BASED	11.04.1988
2492	1.50	18.0	6.8	WATER BASED	11.04.1988
2492	1.50	16.0	4.4	WATER BASED	06.04.1988
2492	1.50	16.0	4.4	WATER BASED	08.04.1988
2492	1.50	16.0	4.4	WATER BASED	05.04.1988
2492	1.50	16.0	4.4	WATER BASED	07.04.1988
2495	1.65	25.0	6.8	WATER BASED	15.03.1988
2495	1.65	27.0	7.7	WATER BASED	15.03.1988
2532	1.65	26.0	7.7	WATER BASED	16.03.1988
2589	1.61	19.0	6.3	WATER BASED	21.03.1988
2690	1.61	26.0	6.3	WATER BASED	28.03.1988
2777	1.61	29.0	7.7	WATER BASED	28.03.1988
2777	1.61	29.0	7.7	WATER BASED	29.03.1988
2777	1.61	26.0	7.2	WATER BASED	30.03.1988
2777	1.61	26.0	7.2	WATER BASED	05.04.1988
2876	1.61	26.0	7.2	WATER BASED	05.04.1988

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]
1233 Formation pressure (Formasjonstrykk)	pdf	0.22

