General information

Wellbore name	30/3-4
Type	EXPLORATION
Purpose	APPRAISAL
Status	SUSPENDED
Factmaps in new window	link to map
Main area	NORTH SEA
Field	VESLEFRIKK
Discovery	30/3-2 Veslefrikk
Well name	30/3-4
Seismic location	ST 8318 - 650 SP. 368
Production licence	052
Drilling operator	Den norske stats oljeselskap a.s
Drill permit	451-L
Drilling facility	DEEPSEA BERGEN
Drilling days	128
Entered date	05.02.1985
Completed date	12.06.1985
Release date	12.06.1987
Publication date	07.11.2005
Purpose - planned	APPRAISAL
Reentry	NO
Content	OIL/GAS
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	COOK FM
Kelly bushing elevation [m]	23.0
Water depth [m]	164.0
Total depth (MD) [m RKB]	3287.0
Final vertical depth (TVD) [m RKB]	3285.0
Maximum inclination [°]	6
Bottom hole temperature [°C]	152
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	STATFJORD GP
Geodetic datum	ED50
NS degrees	60° 45' 56.85'' N
EW degrees	2° 51' 30.2'' E

NS UTM [m]	6736868.13
EW UTM [m]	492284.13
UTM zone	31
NPDID wellbore	460

Wellbore history

General

Appraisal well 30/3-4 was drilled on the Veslefrikk Field. The primary objectives of the well were to investigate possible oil accumulations in sandstones in Ness and Etive Formations, and to determine the oil/water contact. Secondary objective was sandstone of the Early Jurassic Dunlin Group.

Operations and results

Wildcat well 30/3-4 was spudded with the semi-submersible installation Deepsea Bergen on 5 February 1985 and drilled to TD at 3287 m in Early Jurassic sediments of the Statfjord Formation. Drilling went without problems to a depth of 1788 m. While running the 13 3/8" casing a wedge got stuck in the BOP and locked the casing. A technical sidetrack was decided. The sidetrack was kicked off from 790 m, and drilled to 1792 m. An attempt to set 13 3/8" casing at this depth was unsuccessful, as the shoe got stuck at 1178 m. The casing was cut at 872 m and a second technical sidetrack was kicked of from 630 m. The problems encountered while running casing might have been caused by differential pressure between the Utsira sand and a sand at 1700 m. A total of 4 weeks was spent on the 17 1/2" section before the 13 3/8" casing was finally in place. Drilling to TD proceeded without further problems. The interval below 3131 m was drilled with turbine. The well was drilled with seawater and hi-vis pills to 248 m, with gel/seawater from 248 m to 606 m, and with KCl/polymer mud in the 17 1/2" section from 606 m to 1605 m. In the final 17 12/2" sidetrack from 630 m "Torq Trim" and 7% diesel was added to the mud. The 12 1/4" section from 1605 m to 2812 m was drilled with KCl/polymer mud, and the 8 1/2" section from 2812 m to TD was drilled with Lignite/Lignosulphonate mud.

Hydrocarbons were encountered in both Ness and Etive Formations and in the secondary target, the Cook Formation. Top reservoir in the Brent Group is at 2843 m, and the oil/water contact is at 2930 m. Top Cook Formation sand came in at 3079 m, and the possible oil/ water contact is at 3129 m. Twelve cores were cut in 8 1/2" hole from 2830 - 2972 m and 3086 - 3131 m, covering both reservoir sections. No fluid sample was taken on wire line.

The well was suspended on 12 June 1985 for possible later use as a producer. It is classified as an oil/gas appraisal.

Testing

Six Drill Stem Tests were performed with good results. The high production rate from Cook Formation was especially interesting.

DST 1 from 3079 m to 3096 m (Cook Formation) produced 1023 m oil/day and 114 800 m gas/day on 60/64" choke and wellhead pressure equal to 54 bar.

DST 2 from 2932 m to 2941 m (Etive Formation) flowed for 2 hours on 48/64" choke and produced 580 m water/day and wellhead pressure equal to 37 bars. A water injection test was performed.

DST 3 from 2903 m to 2923 m (Etive Formation) produced 1640 m oil/day and 126 700 m gas/day on 56/64" choke and wellhead pressure equal to 90 bar.

DST 4 from 2866 m to 2882 m (Ness/Etive Formations) produced 1230 m oil/day and 101 900 m gas/day on 46/64" choke and wellhead pressure equal to 103 bar.

DST 5 from 2850 m to 2857 m (Ness Formation) produced 578 m oil/day and 46 200 m gas/day on 48/64" choke and wellhead pressure equal to 41 bar.

DST 6 from 2826 m 2833 m (a separate sandstone section in top Ness Formation) produced 237 m water/day on 1" choke and wellhead pressure equal to 4 bar.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
260.00	3287.50

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	2830.0	2834.4	[m]
2	2835.0	2839.3	[m]
3	2840.0	2851.8	[m]
4	2853.0	2862.0	[m]
5	2865.0	2879.6	[m]
6	2880.5	2907.9	[m]
7	2907.9	2928.8	[m]
8	2930.0	2937.3	[m]
9	2938.0	2952.5	[m]
10	2953.0	2972.3	[m]
11	3086.0	3113.0	[m]
12	3113.0	3130.7	[m]

Total core sample length [m]	178.1
Cores available for sampling?	YES

Core photos


2830-2834m


2835-2839m


2840-2846m


2846-2851m


2853-2859m


2859-2862m


2865-2871m


2871-2877m


2877-2879m


2880-2886m


2886-2892m


2892-2898m


2898-2904m


2904-2907m


2907-2913m


2913-2919m


2919-2915m


2925-2928m


2930-2936m


2936-2937m


2938-2944m


2944-2950m


2950-2952m


2953-2959m


2959-2965m


2965-2971m


2971-2972m


3086-3092m


3092-3098m


3098-3104m


3104-3110m


3110-3113m


3113-3119m


3119-3125m


3125-3130m

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	TEST1	3079.00	3096.00		01.05.1985 - 00:00	YES
DST	TEST3	2903.00	2923.00		21.05.1985 - 00:00	YES
DST	TEST4	2866.00	2882.00	OIL	24.05.1985 - 00:00	YES
DST	TEST5	2850.00	2857.00	OIL	02.06.1985 - 00:00	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
187	NORDLAND GP
731	UTSIRA FM
778	UNDIFFERENTIATED
903	HORDALAND GP
1350	GRID FM
1361	NO FORMAL NAME
1453	GRID FM
1518	NO FORMAL NAME
1981	ROGALAND GP
1981	BALDER FM
2067	SELE FM
2104	LISTA FM
2267	VÅLE FM
2275	SHETLAND GP
2275	JORSALFARE FM
2491	KYRRE FM
2775	CROMER KNOLL GP
2792	VIKING GP
2792	HEATHER FM
2826	BRENT GP
2826	NESS FM
2873	ETIVE FM

2949	DUNLIN GP
2949	DRAKE FM
3079	COOK FM
3128	AMUNDSEN FM
3232	STATFJORD GP

Composite logs

Document name	Document format	Document size [MB]
460	pdf	0.54

Geochemical information

Document name	Document format	Document size [MB]
460_1	pdf	4.83
460_2	pdf	13.24

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

Document name	Document format	Document size [MB]
460_01_WDSS_General_Information	pdf	0.29
460_02_WDSS_completion_log	pdf	0.24

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

Document name	Document format	Document size [MB]
460_01_Completion_report	pdf	14.95
460_02_Completion_log	pdf	1.88

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	3079	3096	23.8
3.0	2903	2923	23.8

4.0	2866	2882	18.3
5.0	2850	2857	19.0
6.0	2826	2833	25.0

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0	6.000		34.000	
3.0	9.000		32.000	
4.0	10.000		32.000	
5.0	4.000			
6.0				

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	1023	104000	0.830		108
3.0	1640	126700	0.830		77
4.0	1230	101900	0.831	0.766	82
5.0	578	46200	0.835	0.770	80
6.0					

Logs

Log type	Log top depth [m]	Log bottom depth [m]
ACBL VDL GR	165	2805
ACBL VDL GR	180	1583
CAL GR	600	1605
CDL CNL GR	1582	3286
CDL GR	600	1781
DIFL BHC ACL GR CAL	600	1781
DIFL BHC ACL GR CAL	1583	3286
DLL MLL GR	2790	3286
FMT	2827	3270
SPECTRALOG	2790	3279
VELOCITY	600	3284

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	248.0	36	248.0	0.00	LOT
SURF.COND.	20	600.0	26	606.0	1.46	LOT
INTERM.	13 3/8	1583.0	17 1/2	1605.0	1.89	LOT
INTERM.	9 5/8	2795.0	12 1/4	2812.0	1.86	LOT
LINER	7	3280.0	8 1/2	3287.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
606	1.09	42.0	12.4	WATERBASED	11.02.1985
606	1.09	42.0	12.4	WATER BASED	11.02.1985
719	1.15	60.0	13.9	WATERBASED	17.03.1985
719	1.15	60.0	13.9	WATER BASED	17.03.1985
792	1.14	52.0	12.9	WATER BASED	13.02.1985
792	1.14	52.0	12.9	WATERBASED	13.02.1985
860	1.20	62.0	11.5	WATERBASED	03.03.1985
860	1.20	62.0	11.5	WATER BASED	03.03.1985
932	1.01	69.0	12.4	WATERBASED	17.03.1985
932	1.01	69.0	12.4	WATER BASED	17.03.1985
1037	1.14	44.0	9.6	WATERBASED	14.02.1985
1037	1.14	44.0	9.6	WATER BASED	14.02.1985
1048	1.21	68.0	10.5	WATER BASED	03.03.1985
1048	1.21	68.0	10.5	WATERBASED	03.03.1985
1242	1.15	63.0	12.9	WATER BASED	17.03.1985
1242	1.15	63.0	12.9	WATERBASED	17.03.1985
1384	1.20	62.0	15.3	WATERBASED	03.03.1985
1384	1.20	62.0	15.3	WATER BASED	03.03.1985
1470	1.15	66.0	14.8	WATERBASED	18.03.1985
1470	1.15	66.0	14.8	WATER BASED	18.03.1985
1470	1.13	41.0	9.1	WATER BASED	15.02.1985
1470	1.13	41.0	9.1	WATERBASED	15.02.1985
1514	1.15	50.0	15.0	WATERBASED	18.02.1985
1514	1.15	50.0	15.0	WATER BASED	18.02.1985
1586	1.20	58.0	13.9	WATER BASED	04.03.1985
1586	1.20	58.0	13.9	WATERBASED	04.03.1985
1605	1.14	79.0	18.2	WATERBASED	19.03.1985

1605	0.00	76.0	16.8	WATERBASED	22.03.1985
1605	1.14	79.0	18.2	WATER BASED	19.03.1985
1605	1.32	76.0	16.8	WATER BASED	22.03.1985
1652	1.25	52.0	15.0	WATER BASED	18.02.1985
1652	1.25	52.0	15.0	WATERBASED	18.02.1985
1710	1.35	54.0	15.0	WATER BASED	18.02.1985
1710	1.35	54.0	15.0	WATERBASED	18.02.1985
1717	1.42	70.0	16.0	WATER BASED	25.03.1985
1717	1.42	70.0	16.0	WATERBASED	25.03.1985
1788	1.43	58.0	16.0	WATER BASED	18.02.1985
1788	1.43	58.0	16.0	WATERBASED	18.02.1985
1792	1.45	60.0	13.9	WATERBASED	05.03.1985
1792	1.45	60.0	13.9	WATER BASED	05.03.1985
2000	1.50	68.0	15.0	WATERBASED	25.03.1985
2000	1.50	68.0	15.0	WATER BASED	25.03.1985
2172	1.51	67.0	13.4	WATERBASED	25.03.1985
2172	1.51	67.0	13.4	WATER BASED	25.03.1985
2365	1.51	67.0	12.4	WATERBASED	26.03.1985
2365	1.51	67.0	12.4	WATER BASED	26.03.1985
2493	1.51	62.0	11.0	WATER BASED	27.03.1985
2493	1.51	62.0	11.0	WATERBASED	27.03.1985
2526	1.51	63.0	9.1	WATERBASED	28.03.1985
2526	1.51	63.0	9.1	WATER BASED	28.03.1985
2636	1.51	65.0	11.8	WATER BASED	29.03.1985
2636	1.51	65.0	11.8	WATERBASED	29.03.1985
2654	1.51	65.0	9.1	WATER BASED	01.04.1985
2654	1.51	65.0	9.1	WATERBASED	01.04.1985
2689	1.51	61.0	9.0	WATERBASED	01.04.1985
2689	1.51	61.0	9.0	WATER BASED	01.04.1985
2770	1.51	62.0	8.0	WATER BASED	01.04.1985
2770	1.51	62.0	8.0	WATERBASED	01.04.1985
2795	1.33	17.0	7.0	WATERBASED	09.04.1985
2795	1.33	17.0	7.0	WATER BASED	09.04.1985
2812	1.51	57.0	8.0	WATERBASED	02.04.1985
2812	0.00	55.0	7.0	WATERBASED	03.04.1985
2812	1.51	57.0	8.0	WATER BASED	02.04.1985
2812	1.51	55.0	7.0	WATER BASED	03.04.1985
2908	1.33	17.0	6.0	WATER BASED	11.04.1985
2908	1.33	17.0	6.0	WATERBASED	11.04.1985
3183	1.33	53.0	6.0	WATER BASED	18.04.1985

3183	1.33	53.0	6.0	WATERBASED	18.04.1985
3248	1.23	18.0	7.0	WATERBASED	29.04.1985
3248	1.23	18.0	7.0	WATER BASED	29.04.1985
3287	1.33	48.0	6.2	WATERBASED	19.04.1985
3287	1.33	48.0	6.2	WATER BASED	19.04.1985