

**General information**

Wellbore name	30/6-9
Type	EXPLORATION
Purpose	WILDCAT
Status	SUSPENDED
Factmaps in new window	link to map
Main area	NORTH SEA
Field	OSEBERG
Discovery	30/6-9
Well name	30/6-9
Seismic location	ST 8006 - 121 SP 510
Production licence	053
Drilling operator	Norsk Hydro Produksjon AS
Drill permit	339-L
Drilling facility	NORTRYM
Drilling days	111
Entered date	28.08.1982
Completed date	16.12.1982
Release date	16.12.1984
Publication date	29.03.2014
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL/GAS
Discovery wellbore	YES
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	BRENT GP
Kelly bushing elevation [m]	25.0
Water depth [m]	107.0
Total depth (MD) [m RKB]	3476.0
Final vertical depth (TVD) [m RKB]	3474.0
Maximum inclination [°]	5
Bottom hole temperature [°C]	116
Oldest penetrated age	LATE TRIASSIC
Oldest penetrated formation	LUNDE FM
Geodetic datum	ED50
NS degrees	60° 30' 2.5" N
EW degrees	2° 46' 53.4" E
NS UTM [m]	6707352.35
EW UTM [m]	487996.62



UTM zone	31
NPDID wellbore	83

Wellbore history

General

Well 30/6-9 was drilled on the Gamma structure on the Oseberg Field in the northern North Sea. The Gamma structure lies on the west side of the Alpha structure and is separated from it by a large northwest-southeast fault. The primary objectives of well 30/6-9 were to test hydrocarbon accumulations in the Brent Group and find additional hydrocarbon accumulations within the Early Jurassic. This was the first well located on the Gamma structure. Planned depth for the well was ca 3360 m or 75 m into the Triassic Lunde Formation.

Operations and results

Wildcat well 30/6-9 was spudded with the semi-submersible installation Nortrym on 28 August 1982 and drilled to TD at 3476 m in the Late Triassic Lunde Formation. No significant problems occurred while drilling the well. The well was drilled with seawater, bentonite and hi-vis pills down to 975 m, with KCl/polymer mud from 975 m to 2750 m, and with lignite/lignosulphonate/freshwater mud from 2750 m to TD

Weak to strong shows were reported mainly in soft limestone stringers in the lowermost part of the Lista Formation in the Late Paleocene, in the Danian, and through the Maastrichtian. Further shows above the Brent Group were reported in cuttings in limestones from 2410 to 2422.5 m, just above the Late Jurassic unconformity.

The main target, Brent Group was penetrated from 2458 to 2620 m. It was hydrocarbon bearing over the entire interval with the gas/oil contact calculated from FMT pressure recordings at ca 2520 m. This is the same, as the GOC on the Alpha structure. No oil/water contact was encountered. The net pay in the Brent Group is calculated to be 98 m giving a net/gross ratio of 0.60. The average porosity is 22.7% with an average water saturation of 20%. Below the Brent Group weak shows were reported from 2622 to 2630 m in the Drake Formation and in thin sandstone and siltstone stringers at 3000 to 3046 m in the Early Jurassic Amundsen Formation. The Early Jurassic Statfjord Group was found to be water bearing.

Ten cores were cut from 2462 m to 2624.5 m in the Ness, Etive, and Drake formations. FMT fluid samples were taken in the Brent Group at 2461.5 m (gas and mud filtrate), 2489.5 m (2 3/4 gal chamber empty), 2543 m (gas, oil and mud filtrate), 2567 m (gas, oil and trace mud filtrate), and at 2617.5 m (gas, oil and mud filtrate).

The well was suspended on 16 December 1982 as an oil and gas discovery.

Testing

Five DST's were performed in this well, two in the gas zone and three in the oil zone.

DST No 1 (2612.5 - 2615.5 m) at the base of the Etive Formation tested 528.7 Sm³/day of oil and 58581 Sm³ /day of gas through a 32/64" choke. GOR was 110 Sm³/Sm³. Oil gravity was 33.2 deg API and gas gravity was 0.679 (air = 1). Maximum temperature recorded at reference depth 2594.3 m was 103.1 deg C.

DST No 2 (2554 - 2559 m) at the very top of the Etive Formation tested 554 Sm³ oil /day and 65656 Sm³ gas /day through a 32/64" choke. GOR was 118 Sm³/Sm³. Oil gravity was 33.5 deg API and gas gravity was 0.678 (air = 1). Maximum temperature recorded



at reference depth 2553 m was 100 deg C. This test was interrupted by technical problems during sampling. A re-test over the same interval (DST No 2A) was done to complete the test programme.

DST No 3 (2537.3 - 2540 m and 2542.5 - 2547 m) in the lower Ness Formation tested 429 Sm³oil and 52072 Sm³ associated gas /day) through a 30/64" choke. GOR was 121 Sm³/Sm³. Oil gravity was 34 deg API and gas gravity was 0.675 (air = 1). Maximum temperature recorded at reference depth 2519.7 m was 99.8 deg C.

DST No 4 (2498 - 2501 m) in the middle Ness Formation gas zone tested 200 Sm³ condensate and 624400 Sm³ gas /day through a 40/54" choke. Gas/Condensate Ratio was 3210 Sm³/Sm³. Condensate gravity was 54.8 deg API and gas gravity was 0.662 (air = 1). Maximum temperature recorded at reference depth 2485.8 m was 98.2 deg C.

DST No 5 (2460 - 2463 m) at the top of the Ness Formation tested 189 Sm³ condensate and 673500 Sm³ gas /day through a 40/64" choke. GCR was 3560 Sm³/Sm³. Oil gravity was 60.2 deg API and gas gravity was 0.670 (air =1). Maximum temperature recorded at reference depth 2453.2 m was 97.8 deg C.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
210.00	3475.00

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	2462.0	2480.0	[m]
2	2480.0	2498.5	[m]
3	2498.5	2516.0	[m]
4	2516.5	2532.8	[m]
5	2533.0	2534.0	[m]
6	2535.0	2552.8	[m]
7	2553.0	2571.0	[m]
8	2571.0	2589.0	[m]
9	2589.0	2607.0	[m]
10	2607.0	2624.2	[m]

Total core sample length [m]	160.3
Cores available for sampling?	YES



Core photos



2462-2466m



2466-2470m



2470-2474m



2474-2478m



2478-2480m



2480-2484m



2484-2488m



2488-2492m



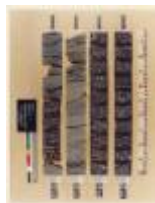
2492-2496m



2496-2498m



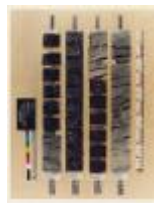
2498-2502m



2502-2506m



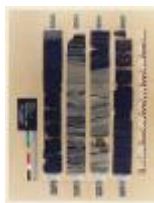
2506-2510m



2510-2514m



2514-2516m



2516-2520m



2520-2524m



2524-2528m



2528-2532m



2532-2532m



2533-2534m



2535-2539m



2539-2543m



2543-2547m



2547-2551m



2551-2552m



2553-2557m



2561-2565m



2557-2561m



2565-2569m



2569-2571m



2571-2575m



2575-2579m



2579-2583m



2619-2623m



2583-2587m



2623-2624m



2587-2589m



2589-2593m



2593-2597m



2597-2601m



2601-2605m



2605-2607m



2607-2611m



2611-2615m



2615-2619m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
2444.5	[m]	SWC	RRI
2456.5	[m]	SWC	RRI
2471.0	[m]	C	RRI
2483.0	[m]	C	RRI
2501.0	[m]	C	RRI
2507.0	[m]	C	RRI
2518.5	[m]	C	RRI
2529.5	[m]	C	RRI



2542.5	[m]	C	RRI
2547.5	[m]	C	RRI
2552.5	[m]	C	RRI
2612.0	[m]	C	RRI
2621.0	[m]	C	RRI
2624.0	[m]	C	RRI
2629.5	[m]	SWC	RRI
2662.5	[m]	SWC	RRI
2676.0	[m]	SWC	RRI
2701.5	[m]	SWC	RRI
2711.0	[m]	SWC	RRI
2727.0	[m]	SWC	RRI
2740.0	[m]	SWC	RRI
2755.0	[m]	SWC	RRI
2775.0	[m]	SWC	RRI
2795.0	[m]	SWC	RRI
2854.0	[m]	SWC	RRI
2879.5	[m]	SWC	RRI
2901.0	[m]	SWC	RRI
2923.0	[m]	SWC	RRI
2962.5	[m]	SWC	RRI
3008.0	[m]	SWC	RRI
3042.0	[m]	SWC	RRI
3105.5	[m]	SWC	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	DST5	2460.00	2463.00		10.12.1982 - 00:00	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
132	NORDLAND GP
651	UTSIRA FM
862	HORDALAND GP



2001	ROGALAND GP
2001	BALDER FM
2073	SELE FM
2175	LISTA FM
2265	VÅLE FM
2279	SHETLAND GP
2423	VIKING GP
2423	HEATHER FM
2458	BRENT GP
2458	NESS FM
2554	ETIVE FM
2620	DUNLIN GP
2620	DRAKE FM
2821	COOK FM
2878	BURTON FM
2964	AMUNDSEN FM
3046	STATFJORD GP
3046	NANSEN FM
3226	EIRIKSSON FM
3334	RAUDE FM
3389	HEGRE GP
3389	LUNDE FM

Geochemical information

Document name	Document format	Document size [MB]
83_1	pdf	0.58
83_2	pdf	15.59

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

Document name	Document format	Document size [MB]
83_01_WDSS_General_Information	pdf	0.21
83_02_WDSS_completion_log	pdf	0.25

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





Document name	Document format	Document size [MB]
83_30_6_9_COMPLETION_REPORT_AND_LOG	pdf	22.89

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	2612	2615	12.7
2.0	2554	2559	12.7
3.0	2537	2547	11.9
4.0	2498	2501	15.8
5.0	2460	2463	15.8

Test number	Final shut-in pressure [MPa]	Final flow pressure [MPa]	Bottom hole pressure [MPa]	Downhole temperature [°C]
1.0				103
2.0				100
3.0				100
4.0				98
5.0				98

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	529	59000	0.859	0.679	110
2.0	554	66000	0.857	0.678	118
3.0	429	52000	0.806	0.675	121
4.0	200	643000	0.759	0.662	3214
5.0	189	674000	0.738	0.670	3563

Logs

Log type	Log top depth [m]	Log bottom depth [m]
AC	2368	2745
CBL VDL	2303	2725
CCL GR	2350	2748
CDL CNL GR	930	2397
CDL CNL GR	2581	3473





CDL CNL SP GR	2378	2646
CST	1320	2397
CST	2400	2750
CST	2749	3461
DIFL BHC CBL VDL	2713	3474
DIFL BHC FR	130	2748
DLL MSFL GR	2370	2748
FMT	2414	2617
FMT	2457	2457
FMT	2459	2567
FMT	2461	2461
FMT	2489	2489
FMT	2489	2489
FMT	2533	2543
FMT	2567	2567
FMT	2567	2567
FMT	2606	2618
FMT	3049	3457
HRD	1920	3465
SP	2378	2641
VELOCITY	298	1316
VELOCITY	1635	3407

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	218.5	36	219.5	0.00	LOT
SURF.COND.	20	960.0	26	975.0	1.66	LOT
INTERM.	13 3/8	2384.0	17 1/2	2400.0	1.81	LOT
INTERM.	9 5/8	2738.0	12 1/4	2750.0	0.00	LOT
OPEN HOLE		3476.0	8 3/8	3476.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
145	1.32	12.0	10.0	WATER BASED	14.05.1990
2282	1.32	11.0	14.0	WATER BASED	10.05.1990

**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]
83 Formation pressure (Formasjonstrykk)	pdf	0.22

