General information

Wellbore name	30/9-9
Type	EXPLORATION
Purpose	WILDCAT
Status	P&A
Factmaps in new window	link to map
Main area	NORTH SEA
Field	OSEBERG SØR
Discovery	30/9-9 Oseberg Sør
Well name	30/9-9
Seismic location	NH 8502 COL. 1268 ROW 201
Production licence	104
Drilling operator	Norsk Hydro Produksjon AS
Drill permit	621-L
Drilling facility	POLAR PIONEER
Drilling days	42
Entered date	26.09.1989
Completed date	06.11.1989
Release date	06.11.1991
Publication date	12.01.2015
Purpose - planned	WILDCAT
Reentry	NO
Content	OIL
Discovery wellbore	YES
1st level with HC, age	MIDDLE JURASSIC
1st level with HC, formation	TARBERT FM
2nd level with HC, age	MIDDLE JURASSIC
2nd level with HC, formation	NESS FM
Kelly bushing elevation [m]	23.0
Water depth [m]	101.0
Total depth (MD) [m RKB]	2809.0
Final vertical depth (TVD) [m RKB]	2809.0
Maximum inclination [°]	2.5
Bottom hole temperature [°C]	115
Oldest penetrated age	EARLY JURASSIC
Oldest penetrated formation	EIRIKSSON FM
Geodetic datum	ED50
NS degrees	60° 19' 51.1'' N
EW degrees	2° 52' 29.47'' E

NS UTM [m]	6688423.02
EW UTM [m]	493089.05
UTM zone	31
NPDID wellbore	1442

Wellbore history

General

Well 30/9-9 was drilled on the J-South structure in the Oseberg Sør Field complex in the North Sea. The first well on J-South, well 30/9-5 S some 3.5 km to the north, encountered a highly eroded Brent Group with gas shows in the Brent, a gas bearing Cook Formation and a water bearing Statfjord Group. The primary objective of well 30/9-9 was to prove oil in the Brent Group and the Cook Formation, and define the oil-water contact.

Operations and results

Wildcat well 30/9-9 was spudded with the semi-submersible installation Polar Pioneer on 26 September 1989 and drilled to TD at 2809 m in the Early Jurassic Eiriksson Formation. No significant problem was encountered in the operations. The well was drilled with seawater and hi-vis pills down to 919 m and with KCl/polymer mud from 919 m to TD.

The Tarbert Formation and the uppermost part of the Ness Formation were found oil bearing down to 2319 m. The net pay was estimated to be 13.5 m and average water saturation calculated to 30.1%. Average porosity was 20.8%. The Ness Formation (2307 - 2412 m) was found oil bearing from 2391.5 to 2412.5 m. No oil water contact was proved, leaving oil down to base reservoir. The net pay was estimated to be 15.5 m and average water saturation calculated to 24.3%. Average porosity was 24.9%. RFT results showed no pressure communication between the hydrocarbon bearing intervals in the Tarbert and Ness Formations.

The Etive-Rannoch Formations and the Oseberg Formation were not present in the well, most likely due to faulting. The lower Jurassic Cook Formation and the Statfjord Group were found water bearing. Oil shows were described on claystones and sandstones from 2115 to 2175 m, throughout the Våle Formation. Shows were described on limestones in the interval 2250 to top Brent Group. These shows increased in strength downwards towards the oil-bearing reservoir. No shows are described below the deepest oil in the Ness Formation.

Seven cores were cut in the Middle Jurassic Brent Group in four intervals: 2291 - 2317 m, 2322 - 2327 m, 2347 - 2357 m and 2393 - 2427.5 m. RFT fluid samples were taken at 2295.5 m (gas, light oil and water) and at 2346 m (water)

The well was suspended on 6 November 1989. It was plugged and permanently abandoned on 16 August 2003. It is classified as an oil discovery.

Testing

Two DST tests were performed in the well.

DST l tested the interval 2394.4 - 2409.4 m (Ness Formation). It flowed on average 946 Sm3 oil and 158000 Sm3 gas /day on a 19.05 mm choke. The GOR was 166 Sm3/Sm3, the oil gravity was 0.82 g/cm3 and the gas gravity 0.743 (air=l). The bottom hole temperature was 100°.4 C measured at 2349.34 m. The well produced 1.5% CO2 and 1.3 ppm H2S.

DST 2 tested the interval 2294.6 - 2310.6 (Tarbert Formation and uppermost part of Ness Formation). It flowed on average 966 Sm3/day oil and 158000 Sm3 gas on a 19.05mm choke. The GOR was 164 Sm3/Sm3, the oil gravity was 0.82 g/cc and the gas gravity 0.745 (air=l). The bottom hole temperature was 99.8°C measured at 2240.5 m. The well produced 1.6% C02 and 1.5 ppm H2S.

Cuttings at the Norwegian Offshore Directorate

Cutting sample, top depth [m]	Cutting samples, bottom depth [m]
930.00	2809.00

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	2291.0	2304.7	[m]
2	2306.0	2312.4	[m]
3	2313.0	2316.0	[m]
4	2322.0	2326.7	[m]
5	2347.0	2357.0	[m]
6	2393.0	2410.3	[m]
7	2411.0	2426.9	[m]

Total core sample length [m]	70.9
Cores available for sampling?	YES

Core photos


2291-2296m


2296-2301m


2301-2307m


2307-2312m


2312-2315m


2322-2326m


2347-2352m


2352-2356m


2393-2398m


2398-2403m


2403-2408m


2408-2413m


2413-2418m


2418-2423m


2423-2426m

Palynological slides at the Norwegian Offshore Directorate

Sample depth	Depth unit	Sample type	Laboratory
1750.0	[m]	DC	STRAT
1770.0	[m]	DC	STRAT
1780.0	[m]	C	HYDRO
1800.0	[m]	DC	STRAT
1810.0	[m]	DC	STRAT
1830.0	[m]	DC	STRAT
1840.0	[m]	DC	STRAT
1860.0	[m]	DC	STRAT
1870.0	[m]	DC	STRAT
1890.0	[m]	DC	STRAT
1900.0	[m]	DC	STRAT
1920.0	[m]	DC	STRAT
1930.0	[m]	DC	STRAT
1950.0	[m]	DC	STRAT
1960.0	[m]	DC	STRAT
1980.0	[m]	DC	STRAT
1990.0	[m]	DC	STRAT
2010.0	[m]	DC	STRAT
2020.0	[m]	DC	STRAT
2040.0	[m]	DC	STRAT
2050.0	[m]	DC	STRAT
2070.0	[m]	DC	STRAT
2080.0	[m]	DC	STRAT
2100.0	[m]	DC	STRAT
2110.0	[m]	SWC	HYDRO
2130.0	[m]	SWC	HYDRO
2140.0	[m]	DC	STRAT
2160.0	[m]	C	HYDRO
2196.5	[m]	DC	STRAT

2196.5	[m]	SWC	HYDRO
2206.5	[m]	SWC	HYDRO
2210.0	[m]	SWC	HYDRO
2218.0	[m]	SWC	HYDRO
2219.5	[m]	SWC	HYDRO
2223.0	[m]	SWC	HYDRO
2236.0	[m]	SWC	HYDRO
2271.5	[m]	SWC	HYDRO
2273.0	[m]	SWC	HYDRO
2276.0	[m]	SWC	HYDRO
2280.0	[m]	SWC	HYDRO
2288.0	[m]	SWC	HYDRO
2291.1	[m]	C	HYDRO
2292.5	[m]	SWC	HYDRO
2293.0	[m]	SWC	HYDRO
2293.7	[m]	C	HYDRO
2299.0	[m]	C	HYDRO
2301.4	[m]	C	HYDRO
2304.2	[m]	C	HYDRO
2305.0	[m]	DC	STRAT
2308.6	[m]	C	HYDRO
2311.0	[m]	C	STRAT
2312.3	[m]	C	HYDRO
2315.1	[m]	C	HYDRO
2318.5	[m]	SWC	HYDRO
2321.0	[m]	SWC	HYDRO
2325.6	[m]	C	HYDRO
2338.0	[m]	SWC	HYDRO
2340.0	[m]	SWC	HYDRO
2344.0	[m]	SWC	HYDRO
2347.0	[m]	C	HYDRO
2352.5	[m]	C	HYDRO
2355.0	[m]	DC	STRAT
2355.8	[m]	C	HYDRO
2369.0	[m]	SWC	STRAT
2369.0	[m]	SWC	HYDRO
2372.0	[m]	SWC	HYDRO
2374.0	[m]	SWC	HYDRO
2382.0	[m]	DC	STRAT
2393.0	[m]	C	HYDRO

2405.1	[m]	C	HYDRO
2407.8	[m]	C	HYDRO
2409.0	[m]	C	HYDRO
2411.4	[m]	C	HYDRO
2415.2	[m]	C	HYDRO
2435.0	[m]	DC	STRAT
2445.0	[m]	DC	STRAT
2455.0	[m]	DC	STRAT
2465.0	[m]	DC	STRAT
2475.0	[m]	DC	STRAT
2485.0	[m]	DC	STRAT
2495.0	[m]	DC	STRAT
2505.0	[m]	DC	STRAT
2515.0	[m]	DC	STRAT
2525.0	[m]	DC	STRAT
2535.0	[m]	DC	STRAT
2545.0	[m]	DC	STRAT
2553.5	[m]	SWC	HYDRO
2554.0	[m]	SWC	HYDRO
2565.0	[m]	DC	STRAT
2575.0	[m]	DC	STRAT
2585.0	[m]	DC	STRAT
2595.0	[m]	DC	STRAT
2605.0	[m]	DC	STRAT
2615.0	[m]	DC	STRAT
2625.0	[m]	DC	STRAT
2637.0	[m]	SWC	HYDRO
2650.0	[m]	SWC	HYDRO
2665.0	[m]	DC	STRAT
2675.0	[m]	DC	STRAT
2685.0	[m]	DC	STRAT
2695.0	[m]	DC	STRAT
2707.0	[m]	SWC	HYDRO
2727.0	[m]	SWC	HYDRO
2734.0	[m]	SWC	HYDRO
2752.5	[m]	SWC	HYDRO
2756.0	[m]	SWC	HYDRO
2761.5	[m]	SWC	HYDRO
2771.5	[m]	SWC	HYDRO
2778.0	[m]	SWC	HYDRO

2780.0	[m]	SWC	HYDRO
2790.0	[m]	SWC	HYDRO
2809.0	[m]	DC	STRAT

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	2394.40	2409.40	OIL	26.10.1989 - 00:00	YES
DST		2294.60	2310.60		31.10.1989 - 00:00	YES

Lithostratigraphy

Top depth [mMD RKB]	Lithostrat. unit
124	NORDLAND GP
662	UTSIRA FM
864	HORDALAND GP
864	NO FORMAL NAME
1926	ROGALAND GP
1926	BALDER FM
1975	SELE FM
2033	LISTA FM
2116	VÅLE FM
2178	SHETLAND GP
2178	HARDRÅDE FM
2292	VIKING GP
2292	HEATHER FM
2294	BRENT GP
2294	TARBERT FM
2315	NESS FM
2390	ETIVE FM
2408	RANNOCH FM
2418	DUNLIN GP
2418	DRAKE FM
2575	COOK FM
2591	BURTON FM
2639	AMUNDSEN FM

2757	STATFJORD GP
2757	NANSEN FM
2775	EIRIKSSON FM

Geochemical information

Document name	Document format	Document size [MB]
1442_GCH_1	pdf	0.13
1442_GCH_2	pdf	1.40
1442_GCH_3	pdf	3.53

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

Document name	Document format	Document size [MB]
1442_01_WDSS_General_Information	pdf	0.27
1442_02_WDSS_completion_log	pdf	0.18

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

Document name	Document format	Document size [MB]
1442_30_9_9_Completion_log	pdf	4.32
1442_30_9_9_Completion_Report	pdf	12.45

Drill stem tests (DST)

Test number	From depth MD [m]	To depth MD [m]	Choke size [mm]
1.0	2394	2409	19.5
2.0	2295	2311	19.5

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

Test number	Oil [Sm3/day]	Gas [Sm3/day]	Oil density [g/cm3]	Gas grav. rel.air	GOR [m3/m3]
1.0	946	158000	0.822	0.743	166
2.0	966	158000	0.820	0.745	164

Logs

Log type	Log top depth [m]	Log bottom depth [m]
AMS	1946	2776
CBL VDL	1772	2445
CBL VDL	2163	2442
CST	2187	2800
CST	2236	2800
DLL MSFL GR	2180	2437
FMS	2180	2807
LDL CNL	904	2788
MWD	124	2193
NGL	2180	2788
RFT	2257	2784
RFT	2295	2303
SGR DIL LSS	904	2806
VSP	1000	2800

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	211.0	36	213.0	0.00	LOT
INTERM.	13 3/8	905.0	17 1/2	919.0	1.41	LOT
INTERM.	9 5/8	2180.0	12 1/4	2193.0	1.75	LOT
LINER	7	2523.0	8 1/2	2809.0	0.00	LOT

Drilling mud

Depth MD [m]	Mud weight [g/cm3]	Visc. [mPa.s]	Yield point [Pa]	Mud type	Date measured
169	1.05			WATER BASED	27.09.1989
211	1.05			WATER BASED	28.09.1989

213	1.05			WATER BASED	29.09.1989
919	1.15	14.0	8.0	WATER BASED	03.10.1989
919	1.05			WATER BASED	04.10.1989
946	1.15	13.0	7.0	WATER BASED	05.10.1989
1382	1.25	14.0	11.0	WATER BASED	06.10.1989
1773	1.36	20.0	11.0	WATER BASED	09.10.1989
2074	1.38	24.0	15.0	WATER BASED	09.10.1989
2140	1.15	15.0	7.0	WATER BASED	06.11.1989
2193	1.38	21.0	10.0	WATER BASED	09.10.1989
2193	1.38	21.0	10.0	WATER BASED	10.10.1989
2193	1.38	21.0	10.0	WATER BASED	11.10.1989
2242	1.13	15.0	11.0	WATER BASED	12.10.1989
2306	1.14	18.0	13.0	WATER BASED	13.10.1989
2317	1.13	17.0	10.0	WATER BASED	16.10.1989
2327	1.14	18.0	10.0	WATER BASED	16.10.1989
2357	1.14	18.0	10.0	WATER BASED	16.10.1989
2388	1.15	14.0	8.0	WATER BASED	01.11.1989
2388	1.15	14.0	8.0	WATER BASED	02.11.1989
2388	1.15	14.0	8.0	WATER BASED	03.11.1989
2388	1.15	14.0	8.0	WATER BASED	06.11.1989
2411	1.14	20.0	10.0	WATER BASED	18.10.1989
2461	1.14	18.0	11.0	WATER BASED	18.10.1989
2469	1.14	12.0	4.0	WATER BASED	25.10.1989
2469	1.14	14.0	8.0	WATER BASED	27.10.1989
2469	1.14	14.0	8.0	WATER BASED	27.10.1989
2536	1.14	19.0	8.0	WATER BASED	24.10.1989
2555	1.14	23.0	9.0	WATER BASED	19.10.1989
2809	1.14	18.0	7.0	WATER BASED	23.10.1989
2809	1.14	17.0	7.0	WATER BASED	23.10.1989
2809	1.14	17.0	7.0	WATER BASED	23.10.1989
2809	1.14	18.0	7.0	WATER BASED	23.10.1989
2809	1.14	17.0	7.0	WATER BASED	23.10.1989
2809	1.14	17.0	7.0	WATER BASED	23.10.1989

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]
1442_Formation_pressure_(Formasjonstrykk)	pdf	0.22