

Well no : 30/ 9-02 Operator : HYDRO

Coordinates : 60 27 53.00 N UTM coord. : 6703339 N
 02 49 13.03 E 490116 E

Licence no : 079 Permit no : 370

Rig : NORTRYM Rig type : SEMI-SUB.

Contractor : GOLAR-NOR OFFSHORE A/S

Bottom hole temperature : 89 deg.C Elev. KB : 25 M

Spud. date : 83.04.01 Water depth : 104 M

Compl. date : 83.07.12 Total depth : 2830 M

Spud. class : WILDCAT Form. at TD : L.JURASSIC

Compl. class : SUSP. OIL/GAS DISC. Prod. form :

Seisloca : ST 8006 - 117 SP 1505

LICENSEES

15,000 NORSK HYDRO PRODUKSJON A.S
 10,000 SAGA PETROLEUM A.S
 70,000 DEN NORSKE STATS OLJESELSKAP A.S
 5,000 NOT ALLOCATED

CASING AND LEAK-OFF TESTS

Type	Casing diam.	Depth below KB	Hole diam.	Hole depth below KB	Lot mud eqv. g/cm3
CONDUCTOR	30	219,0	36	220,0	
SURF.COND.	20	901,0	26	915,0	1,78
INTERM.	13 3/8	1680,0	17 1/2	1715,0	1,81
INTERM.	9 5/8	2810,0	12 1/4	2830,0	

SIDETRACK FROM 1482.5 M.

CONVENTIONAL CORES

Core no.	Intervals cored meters	Recovery		Series
		M	%	
1	2591.0 - 2594.0	2.9	96.7	MIDDLE JURASSIC
2	2594.0 - 2612.0	17.4	96.7	MIDDLE JURASSIC
3	2612.0 - 2613.0	0.0	0.0	MIDDLE JURASSIC
4	2614.0 - 2632.0	18.0	100.0	MIDDLE JURASSIC
5	2632.0 - 2650.5	18.3	98.9	MIDDLE JURASSIC
6	2650.5 - 2669.0	18.2	98.4	MIDDLE JURASSIC
7	2669.0 - 2687.0	18.0	100.0	MIDDLE JURASSIC
8	2687.0 - 2705.0	17.3	96.1	MIDDLE JURASSIC
9	2705.0 - 2723.0	17.4	96.7	MIDDLE JURASSIC
10	2723.0 - 2741.0	15.3	85.0	MIDDLE JURASSIC
11	2741.0 - 2759.0	16.0	88.9	MIDDLE JURASSIC
12	2759.0 - 2777.0	17.8	98.9	MIDDLE JURASSIC

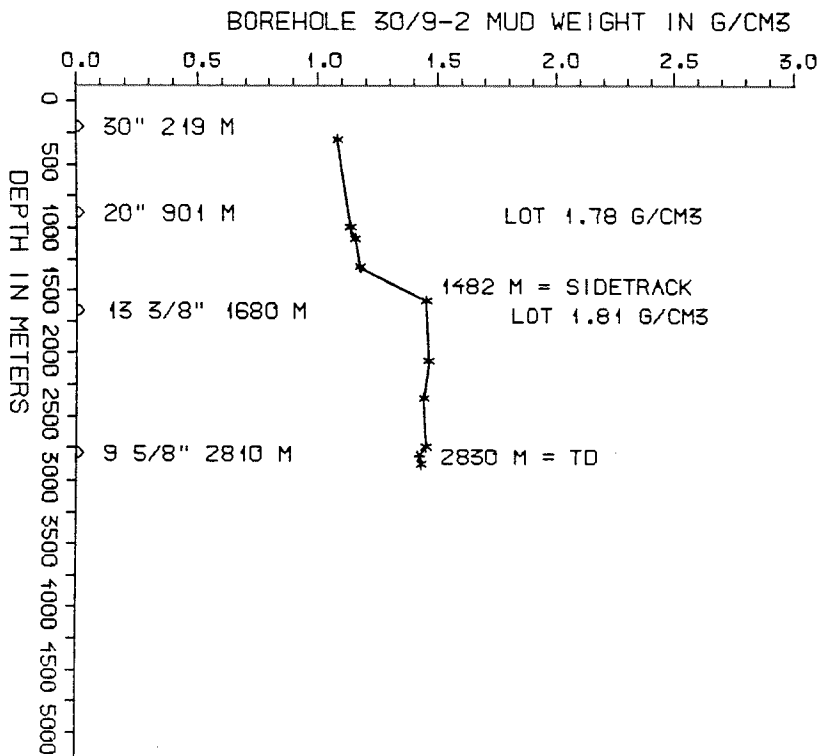
DRILL STEM TEST									
TEST NO	DEPTH BELOW KB	CHOKE SIZE mm	RECOVERY					PRESS. (psi)	
			OIL Sm3 /d	GAS M Sm3 /d	OIL GRAV. g/cm3	GAS GRAV. rel. air	GOR m3/m3	FSIP	WHP
			1	2738 - 2757	19.05	928.5	WATER		
2	2704 - 2728	10.32	400.6	41.05	0.865	0.708	102.5		1459
3	2685 - 2693	11.11	494.5	50.68	0.865	0.695	102.5		1856
4	2595 - 2604	11.11	479.3	57.76	0.842	0.730	120.5		

AVAILABLE LOGS			
LOG TYPE	INTERVALS	1/200	1/500
DIFL BHC AC GR	218 - 913	X	
DIFL BHC AC	901 - 1700	X	
DIFL BHC AC	1483 - 2830	X	
DIFL BHC AC	218 - 2830		X
CDL	901 - 1689	X	X
CDL CNL	1480 - 2826	X	X
CDM	1900 - 2826	X	
CDM AP	1900 - 2826	X	X
STRATADIP	1900 - 2826	1:40	
SPECTRALOG	2550 - 2790	X	X
TEMPERATURE LOG	930 - 1275		X
RFT	2306 - 2773		X
FMT PART 1	2306 - 2773		X
FMT PART 2	2306 - 2773		X
CBL VDL GR	950 - 2735	X	
MUD	218 - 2186		X
VELOCITY	218 - 2830	1:1000	X
(Syntetic Seismogram, Marine 10 cm/s			1 stk)
(Syntetic Seismogram, 10 cm/s			2 stk)
(VSP			7 stk)
(Air gun well velocity surv. & cal. log data			1 stk)
(Two way travel time, 10 cm/s, 1s=3.75 ins.			2 stk)

MUD PROPERTIES			
DEPTH BELOW KB m	WEIGHT g/cm ³	FUNNEL VISC. sec	FILTRATE LOSS cm ³
220	1.05	100	
915	1.10	43	
1000	1.12	42	
1230	1.14	42	
1500	1.42	78	
1980	1.43	75	
2270	1.41	75	
2660	1.42	87	
2710	1.41	70	
2790	1.40	84	
2830	1.40	84	

DRILL BIT CUTTINGS AND WET SAMPLES		
SAMPLE TYPE	INTERVAL BELOW KB	NUMBER OF SAMPLES
CUTTINGS		
WET SAMPLES	230 - 2155	216

SHALLOW GAS	
DEPTH INTERVAL m KB	REMARKS
	MAX. 3.3% GAS READINGS AROUND 355 - 377 m KB



WELL HISTORY - 30/9-2

GENERAL:

The wildcat 30/9-2 was planned as the first well on the Gamma structure in block 30/9. The structure had been previously penetrated by well 30/6-9 (see WDSS vol.13) but this well failed to encounter the oil/water contact. The primary objectives of 30/9-2 were to verify the reserve estimate for the main part of the Gamma structure and penetrate the oil/water contact in the lower part of the Brent Group. Additional objectives were to obtain core material from the oil zone in the Etive Formation and perform a water injection test in this, obtain information on the quality of the reservoir in the water zone and stratigraphical information on the southern part of the Gamma structure. Hydrocarbons were found in the Middle Jurassic Brent Group sandstones. The sandstones were hydrocarbon bearing down to where the oil/water contact was encountered within the Etive Formation sandstones.

OPERATIONS:

30/9-2 was spudded 01.04.83 by the semi-submersible rig Nortrym. 12 cores were cut continuously from the upper part of Ness Formation down into the upper part of Drake Formation.

While running the 13 3/8" casing, this got stuck at 1334 m. The casing was worked free using diesel in the mud and the casing was set at 1680 m.

After drilling the 12 1/4" hole to 2203 m the drillpipe got stuck with the bit at 2170 m. Several unsuccessfull attempts were made to free the pipe. The drillpipe was then backed off and the well was cemented back and sidetracked from 1482.5 m.

The well was drilled using waterbased mud down to the 12 1/4" hole. The 12 1/4" hole was drilled using oilbased mud.

TESTING:

Four DST's were performed in the well, two in the Ness Formation and two in the Etive Formation. The DST performed in the lower part of the Etive Formation was a combined production and injection test which produced water. The other DST's produced oil and gas.

GEOLOGICAL TOPS
WELL 30/9-2

	Depth m (RKB)
Nordland Group	129,0
Utsira Fm	641,0
Hordaland Group	867,0
Rogaland Group	2014,0
Balder Fm	2014,0
Sele Fm	2084,0
Lista Fm	2199,0
Montrose Group	2290,0
Maureen Fm	2290,0
Shetland Group	2303,0
Viking Group	2508,0
Heather Fm	2508,0
Brent Group	2578,0
Ness Fm	2578,0
Etive Fm	2698,0
Dunlin Group	2767,0
Drake Fm	2767,0
TD =	2830,0