

Well no : 31/ 4-06 Operator : HYDRO

Coordinates : 60 31 17.09 N UTM coord. : 6709640 N
 03 1 59.84 E 501827 E

Licence no : 055 Permit no : 317

Rig : NORTRYM

Contractor : GOLAR-NOR OFFSHORE A/S

Bottom hole temperature : 71 deg.C Elev. KB : 25 M

Spud. date : 82.02.28 Water depth : 130 M

Compl. date : 82.04.20 Total depth : 2447 M

Spud. class : APPRAISAL Form. at TD : JURASSIC

Compl. class : P&A. OIL/GAS DISC. Prod. form :

Seisloca : 954 443 SP 190

LICENSEES

10,000 ARCO NORWAY INC.
 5,000 BP PETROLEUM DEVELOPMENT OF NORWAY A/S
 20,000 ESSO NORGE A.S
 15,000 NORSK HYDRO PRODUKSJON A.S
 50,000 DEN NORSKE STATS OLJESELSKAP A.S

CASING AND LEAK-OFF TESTS

Type	Casing diam.	Depth below KB	Hole diam.	Hole depth below KB	Lot mud eqv. g/cm
CONDUCTOR	30	243,0	36	243,5	
SURF.COND.	20	913,0	26	927,0	1,68
INTERM.	13 3/8	1844,0	17 1/2	1865,0	1,72
INTERM.	9 5/8	2406,0	12 1/4	2447,0	

CONVENTIONAL CORES

Core no.	Intervals cored meters	Recovery		Series
		M	%	
1	2132.0 - 2148.3	15.7	96.3	L. JURASSIC
2	2149.0 - 2159.5	10.5	100.0	L/M JURASSIC
3	2159.5 - 2178.1	18.6	100.0	L/M JURASSIC
4	2178.1 - 2196.1	18.0	100.0	M. JURASSIC
5	2196.1 - 2214.5	18.4	100.0	M. 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	BHP	WHP
			1	2159 - 2163 2165 - 2168	14.3	451.7	38.5		

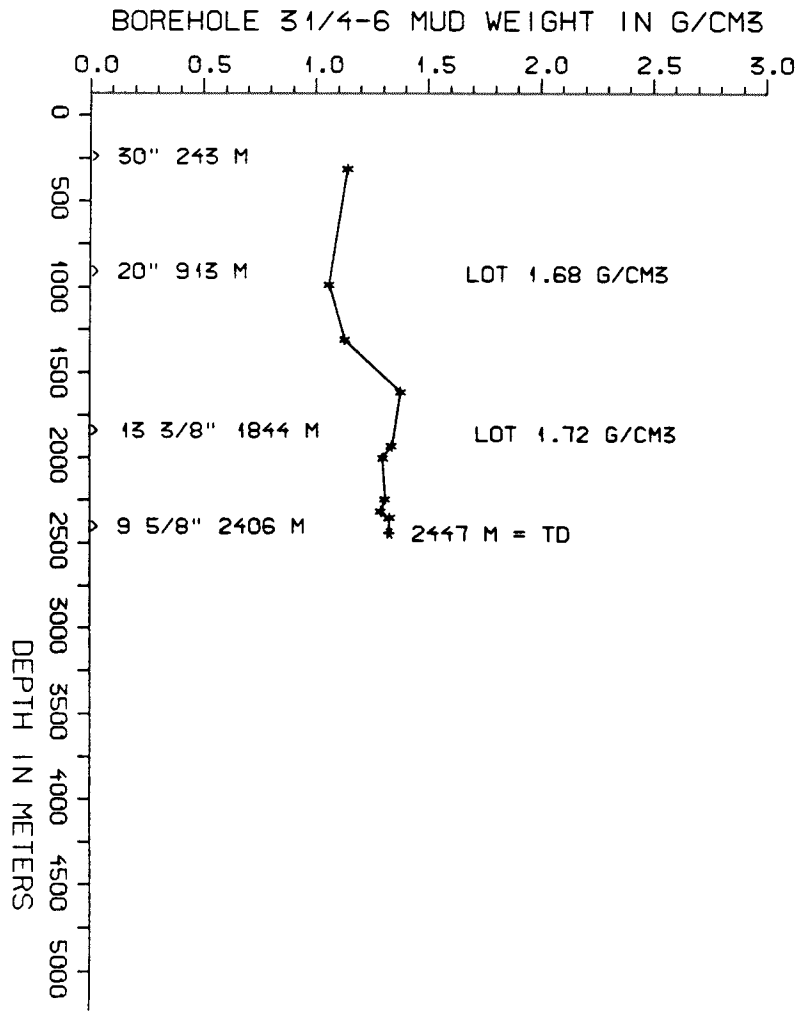
AVAILABLE LOGS			
LOG TYPE	INTERVALS	1/200	1/500
ISF BHC GR	155 - 913	x	
ISF BHC	913 - 1861	x	
ISF BHC	1845 - 2214	x	
ISF BHC NGS	2115 - 2448	x	
ISF SONIC GR	155 - 2448		x
FDC	913 - 1862	x	
FDC CNL	1845 - 2215	x	
LDT CNL	2115 - 2448	x	
FDC CNL	913 - 2448		x
EPT	2115 - 2448	x	x
DLL MSFL	2035 - 2212	x	x
CDM	1844 - 2448	x	
CDM AP	1846 - 2450	x	x
RFT	2115 - 2448	x	
RFT	2115 - 2448	x	
NGS	2115 - 2448	x	x
NGT RATIO - COMPUTATION	2115 - 2435	x	
CBL VDL	700 - 1840	x	
CBL VDL	1640 - 2340	x	
MUD	250 - 2447		x
VELOCITY	155 - 2448	1:1000	x

(Air Gun Well Velocity Survey & C.L.D. 1stk)
(Synthetic Seismogram Marine, 10 cm/s, 1stk)
(Synthetic Seismogram, b/p-w/t, 10 cm/s, 2stk)
(Two Way Travel Time, 10 cm/s, 1stk)

MUD PROPERTIES			
DEPTH BELOW KB m	WEIGHT g/cm ³	FUNNEL VISC. sec	FILTRATE LOSS cm ³
250	1.11	32	
760	1.11	32	
920	1.03	41	
1240	1.10	42	
1550	1.35	56	
1770	1.34	63	
1870	1.31	64	
1940	1.27	64	
2050	1.26	59	
2180	1.28	54	
2250	1.26	50	
2310	1.30	55	
2400	1.31	54	

DRILL BIT CUTTINGS AND WET SAMPLES		
SAMPLE TYPE	INTERVAL BELOW KB	NUMBER OF SAMPLES
CUTTINGS	250 - 2350	300
WET SAMPLES	270 - 2447	420

SHALLOW GAS	
DEPTH INTERVAL m KB	REMARKS
	NONE



WELL HISTORY - 31/4-6

GENERAL :

31/4-6 was drilled as the third well on the 31/4 B-structure (later known as the Fensfjord Reservoir in the Brage Field). The primary objective of this well was to test this Late Jurassic "Fensfjord fm." and to define the OWC in the structure. Hydrocarbons were encountered in this sandstone interval as prognosed.

OPERATIONS :

The rig "Nortrym" spudded the well 31/4-6 on 28.02.82. The drilling of this well was without any special problems except some minor problems with sloughing shales in the top of the 17 1/2" section. Drilling the 12 1/4" section included the cutting of 5 cores. The well reached TD at 2447 m.

TESTING :

The well was tested in the interval 2159.5-2163.5 m and 2165-2168 m. The main flow period lasted 750 min. while the main shut-in period lasted 1440 min. Rates and other data from the test can be seen in the table on the previous page. 4 bottom-hole samples were recovered after the final shut-in period. Two RFT samples were also taken in the oil zone. The reservoir interval was normally pressured.

GEOLOGICAL TOPS

WELL: 31/4-6

	Depth m (RKB)
Nordland Group	155 m
Utsira Fm	676 m
Hordaland Group	854 m
Rogaland Group	1810 m
Balder Fm	1810 m
Sele Fm	1876 m
Lista Fm	1911,5 m
Shetland Group	2061 m
Cromer Knoll Group	2110 m
Viking Group	2122,5 m
Draupne Fm	2122,5 m
Upper Heather Fm	2135,5 m
Fensfjord Fm	2150 m
Lower Heather Fm	2239 m
Brent Group	2317,5 m
Ness Fm	2317,5 m
Etive Fm	2355 m
Dunlin Group	2380 m
Drake Fm	2380 m
	<u>TD = 2447 m</u>