

Well no : 31/ 6-01 Operator : HYDRO

Coordinates : 60 38 44.89 N UTM coord. : 6723687 N
 03 40 53.28 E 537268 E

Licence no : 085 Permit no : 381

Rig : NORTRYM Rig type : SEMI-SUB.

Contractor : GOLAR-NOR OFFSHORE A/S

Bottom hole temperature : 115 deg.C Elev. KB : 25 M

Spud. date : 83.07.15 Water depth : 302 M

Compl. date : 83.10.28 Total depth : 4070 M

Spud. class : WILDCAT Form. at TD : BASEMENT

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

Seisloca : ST 8007 - 123 SP 1175

LICENSEES

9,000 NORSK HYDRO PRODUKSJON A.S
 6,000 SAGA PETROLEUM A.S
 85,000 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 ³
CONDUCTOR	30	424,0	36	426,0	
SURF.COND.	20	748,0	26	765,0	1,46
INTERM.	13 3/8	1310,0	17 1/2	1325,0	1,68
INTERM.	9 5/8	1967,0	12 1/4	1980,0	1,51
OPEN HOLE			8 3/8	4070,0	

CONVENTIONAL CORES

Core no.	Intervals cored meters	Recovery		Series
		M	%	
1	1341.0 - 1349.0	0.0	0.0	UPPER JURASSIC
2	1350.0 - 1352.5	1.0	40.0	UPPER JURASSIC
3	1352.5 - 1361.5	8.5	94.4	UPPER JURASSIC

CONVENTIONAL CORES

Core no. meters	Intervals cored		Recovery		Series
	M	%			
4	1361.5	1371.0	9.2	96.8	UPPER JURASSIC
5	1371.0	1389.0	13.1	72.8	UPPER JURASSIC
6	1389.0	1407.5	18.3	98.9	UPPER JURASSIC
7	1407.5	1425.5	16.7	92.8	U/M. JURASSIC
8	1425.5	1443.5	15.0	83.3	MIDDLE JURASSIC
9	1443.5	1461.5	18.0	100.0	MIDDLE JURASSIC
10	1461.5	1479.5	15.5	86.1	MIDDLE JURASSIC
11	1479.5	1498.0	18.2	98.4	MIDDLE JURASSIC
12	1498.0	1515.5	16.6	94.9	MIDDLE JURASSIC
13	1515.5	1534.0	18.5	100.0	MIDDLE JURASSIC
14	1534.0	1543.0	8.6	95.6	MIDDLE JURASSIC
15	1543.0	1561.0	12.8	71.1	MIDDLE JURASSIC
16	1561.0	1563.0	0.9	45.0	MIDDLE JURASSIC
17	1563.0	1581.5	18.5	100.0	MIDDLE JURASSIC
18	1581.5	1588.5	7.0	100.0	MIDDLE JURASSIC
19	1588.5	1607.0	17.0	91.9	MIDDLE JURASSIC
20	4070.0	4070.3	0.3	100.0	BASEMENT

DRILL STEM TEST									
TEST NO	DEPTH BELOW KB	CHOKE SIZE mm	RECOVERY					PRESS. (psi)	
			COND. Sm ³ /d	GAS M Sm ³ /d	COND. GRAV. g/cm ³	GAS GRAV. rel. air	GOR m ³ /m ³	FSIP	WHP
1	1562 - 1568	22.23		842	0.74	0.635			1580
2	1435 - 1441	19.05		733	0.78	0.630			1752

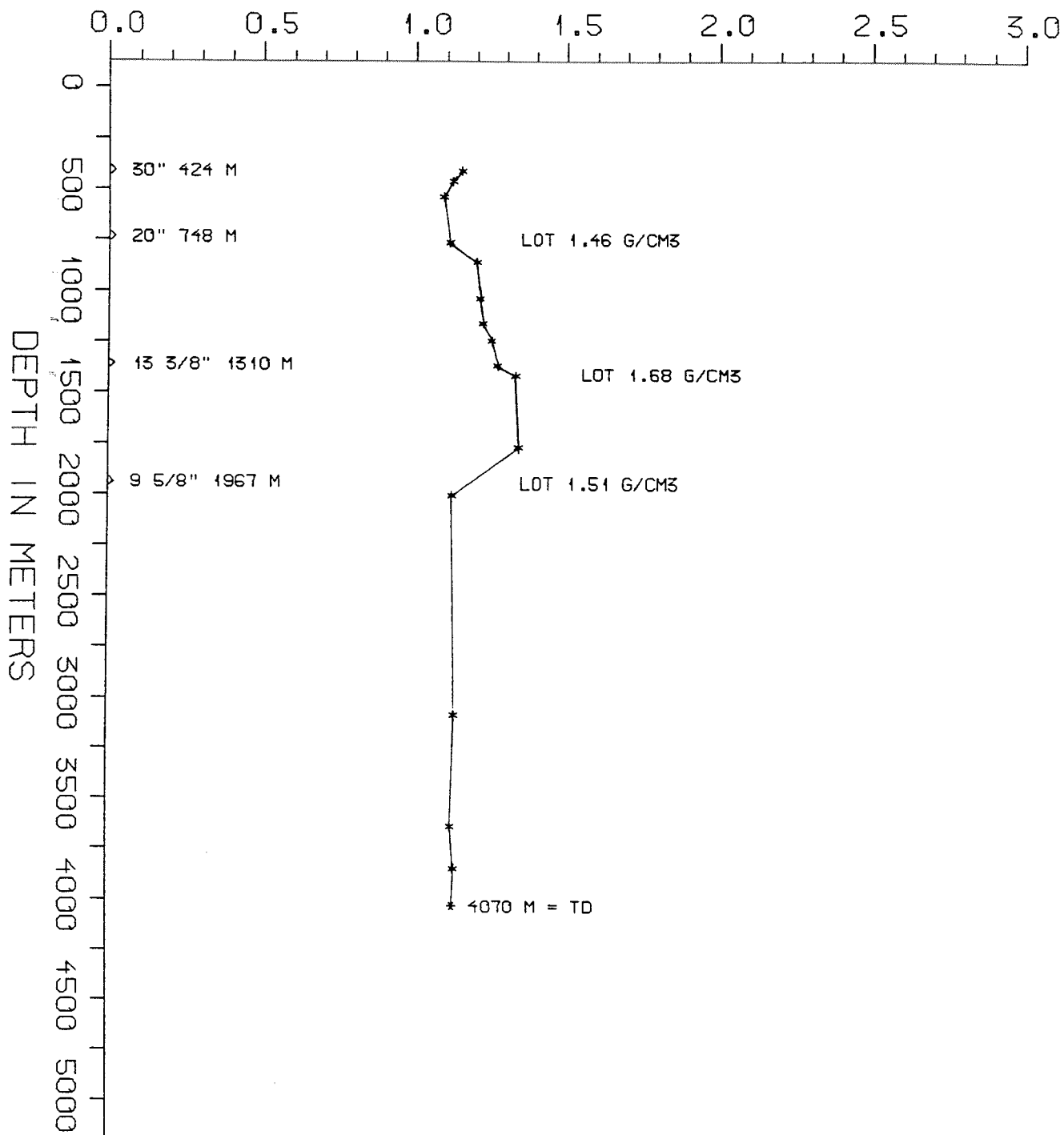
AVAILABLE LOGS			
LOG TYPE	INTERVALS	1/200	1/500
DIFL BHC AC GR	425 - 764	X	
DIFL BHC AC	748 - 1311	X	
DIFL BHC AC	1310 - 1982	X	
DIFL BHC AC	1966 - 3791	X	
DIFL BHC AC	3750 - 4070	X	
DIFL BHC AC	425 - 4070		X
FDC CNL	425 - 761	X	
FDC CNL	748 - 1318	X	
FDC CNL	1295 - 1978	X	
FDC CNL	1950 - 3778	X	
FDC CNL	3750 - 4068	X	
FDC CNL	425 - 4068		X
DLL MLL	1310 - 1604	X	X
GR CCL	1275 - 1703	X	
GR	1300 - 1380	X	
GR	1451 - 1490	X	
CDM	748 - 1314	X	
CDM	1310 - 1982	X	
CDM	1966 - 3789	X	
CDM	3750 - 4070	X	
CDM AP	748 - 1314	X	X
CDM AP	1310 - 1982	X	X
CDM AP	1966 - 3789	X	X
CDM AP	3750 - 4070	X	X
STRATADIP	1310 - 1982	1:40	
SPECTRALOG	1295 - 1973	X	X
PHOTON LOG	1300 - 1550	X	
PHOTON LOG	1300 - 1698	X	
PHOTON LOG	1300 - 1700	X	
DIFF. TEMPERATURE LOG	700 - 1199	1:1000	X
CBL VDL AC	800 - 1310	X	
CBL VDL CCL AC	900 - 1978	X	
FMT	1339 - 1586		X
MUD	425 - 4070		X
VELOCITY	425 - 4070	1:1000	X
(Air Well Velocity Surv.& Caribr.log data			1 stk)
(Two Way Travel Time log			2 stk)
(Synthetic Seismogram, marine, 10+20 cm/s,			2 stk)
(Synthetic Seismogram, 10+20 cm/s,			8 stk)
(V.S.P.			11 stk)

MUD PROPERTIES			
DEPTH BELOW KB m	WEIGHT g/cm ³	FUNNEL VISC. sec	FILTRATE LOSS cm ³
440	1.13	100	
480	1.10	100	
500	1.07	61	
740	1.09	50	
770	1.18	45	
1000	1.19	46	
1140	1.20	46	
1200	1.23	45	
1300	1.25	45	
1340	1.31	44	
1700	1.32	47	
1980	1.10	41	
2400	1.10	42	
3100	1.11	41	
3610	1.10	46	
3800	1.11	46	
4070	1.11	42	

DRILL BIT CUTTINGS AND WET SAMPLES		
SAMPLE TYPE	INTERVAL BELOW KB	NUMBER OF SAMPLES
CUTTINGS	426 - 4070	715
WET SAMPLES	430 - 4070	1320

SHALLOW GAS	
DEPTH INTERVAL m KB	REMARKS
	NONE

BOREHOLE 31/6-1 MUD WEIGHT IN G/CM³



WELL HISTORY - 31/6-1

GENERAL:

The primary objectives of the wildcat 31/6-1 was to test Upper and Middle Jurassic sandstones on the main culmination of the Troll east structure in the western part of block 31/6. Secondary objectives were Middle to Lower Jurassic and Triassic sandstones and a possible sandstone reservoir of pre-Triassic age within a set of tilted fault blocks buried by Triassic strata. The well encountered hydrocarbon bearing Middle to Upper Jurassic Viking Group sandstones. The Middle to Lower Jurassic and Triassic sandstones were found water bearing. The well encountered crystalline basement rocks of indeterminate age at 4013 m.

OPERATIONS:

31/6-1 was spudded 15.08.83 by the semi-submersible rig Nortrym. A total of 20 cores were cut in the well. Cores were cut continuously from the Upper Jurassic siltstone interval below the Draupne Formation down into the Fensfjord Formation sandstones. One core was cut in basement rocks.

Problems with getting logging tools past the 30" casing shoe occurred due to gumbo problems. Further drilling went forth without major problems.

The well was drilled with waterbased mud.

TESTING:

Two DST's were run in the gas zone.

GEOLOGICAL TOPS
WELL 31/6-1

	Depth m (RKB)
Nordland Group	327,0
Hordaland Group	530,5
Rogaland Group	971,5
Balder Fm	971,5
Sele Fm	1083,5
Lista Fm	1193,5
Montrose Group	1231,5
Maureen Fm	1231,5
Shetland Group	1235,5
Cromer Knoll Group	1300,0
Viking Group	1313,0
Draupne Fm	1313,0
Upper Heather Fm	1335,0
Sognefjord Fm	1352,0
Middle Heather Fm	1488,0
Fensfjord Fm	1517,0
Krossfjord Fm	1720,0
Lower Heather Fm	1776,0
Brent Group	1805,0
Ness Fm	1805,0
Etive Fm	1819,5
Dunlin Group	1835,0
Drake Fm	1835,0
Cook Fm	1962,0
Johansen Fm	1981,0
L. Amundsen Fm	2083,0
Statfjord Fm	2111,0
Hegre Group	2155,5
Basement	4013,0
TD =	4070,0