Well no : 34/08-03A Operator : HYDRO

Coordinates	: 61 24 28.04 N 02 32 45.06 E	UTM coord.	: 6808456 N 475751 E
Licence no	: 120	Permit no	: 589
Rig	: POLAR PIONEER	Rig type	: SEMI-SUB.
Contractor	: POLAR FRONTIER DRILLING A/S		
Bottom hole temperature	: 101 deg.C	Elev. KB	: 23 M
Spud. date	: 88.09.14	Water depth	: 382 M
Compl. date	: 88.10.31	Total depth	: 3230 M
Spud. class	: APPRAISAL	Form. at TD	: M.JURASSIC
Compl. class	: P&A. OIL/GAS DISC.	Prod. form	:
Seisloca	: NH 8404 - 321 SP 245		

LICENSEES

13.000000	NORSKE CONOCO A/S
13.000000	ELF AQUITAINE NORGE A/S
18.000000	NORSK HYDRO PRODUKSJON A.S
6.000000	SAGA PETROLEUM A.S.
50.000000	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/cm3
CONDUCTOR	30	491.0	36	.0	.
INTERM.	13 3/8	944.0	17 1/2	1475.0	1.67
INTERM.	13 3/8	944.0	17 1/2	1475.0	1.67
INTERM.	9 5/8	2442.0	12 1/4	2486.0	1.84
INTERM.	9 5/8	2442.0	12 1/4	2486.0	1.84
LINER	7	3227.0	8 1/2	3230.0	.
LINER	7	3230.0	8 1/2	3230.0	.

CONVENTIONAL CORES

Core no.	Intervals cored meters	Recovery M	Recovery %	Series
1	3034.0 - 3062.0	27.9	99.6	
2	3062.0 - 3079.8	17.8	100.0	
3	3081.0 - 3101.8	20.8	100.0	
4	3103.0 - 3131.0	27.9	99.6	
5	3131.0 - 3148.5	27.5	100.0	

MUD PROPERTIES

Depth below KB meter	Mud weigth g/cm3	Viscosity	Mud type
944.000	1.53	20.0	WATER BASED
949.000	1.40	21.0	WATER BASED
966.000	1.52	23.0	WATER BASED
1475.000	1.40	24.0	WATER BASED
1795.000	1.41	24.0	WATER BASED
2045.000	1.40	24.0	WATER BASED
2390.000	1.50	24.0	WATER BASED
2400.000	1.40	20.0	WATER BASED
2674.000	1.52	21.0	WATER BASED
2954.000	1.55	22.0	WATER BASED
3148.000	1.60	24.0	WATER BASED
3177.000	1.70	28.0	WATER BASED
3177.000	1.71	30.0	WATER BASED
3177.000	1.50	15.0	WATER BASED
3230.000	1.60	24.0	WATER BASED

DRILL STEM TEST

INTERVALS AND PRESSURES

Test no.	interval meter	Choke size	Pressure (PSI) WHP	BTHP	FFP
1.0	3087.000 - 3093.000	12.7	3108.0	6220.3	5925.9
	Test temperature: 108.7 °C				
1.1	3071.600 - 3093.000	12.7	3208.1	6217.4	6044.9
	Test temperature: 109.6 °C				

RECOVERY

Test no.	Oil Sm3/d	Gas Sm3/d	Oil grav. g/cm3	Gas grav. rel. air	GOR m3/m3
1.0	746	152640	0.850	0.646	205
1.1	782	155620	0.850	0.650	199

DRILL BIT CUTTINGS AND WET SAMPLES

SAMPLE TYPE	INTERVAL BELOW KB	NUMBER OF SAMPLES
Cutting	990-3230	240
Wet Samples	1000-3230	240

SHALLOW GAS

Interval below KB	REMARKS

AVAILABLE LOGS

LOG TYPE	INTERVALS	1/200	1/500	Div.
DIL LSS GR	405.000 - 2449.000	X	X	
DIL LSS GR	2444.000 - 3229.000	X	X	
LDL CNL NGL	2444.000 - 3196.000	X	X	
DLL MSFL GR	3000.000 - 3182.000	X	X	
MWD	928.000 - 3028.000		X	
MWD	3062.000 - 3230.000		X	
NGL RATIOS	2444.000 - 3186.000	X		
RFT	3084.000 - 3163.000	X		
CBL VDL GR	1875.000 - 3165.000	X		
MUD	996.000 - 3230.000		X	
DRILL. DATA PRESS.	403.000 - 3230.000	1:4000		
WIRELINE DATA PRESS.	944.000 - 3230.000	1:4000		
VELOCITY	950.000 - 3216.000	1:1000	X	

(Synthetic Seismogram, 10 cm/s 1 stk)
(V.S.P, Rig Source V.S.P., 10cm/s, 20 cm/s 10 stk)
(V.S.P.,Vertical Incidence V.S.P, 10 +20 cm/s 10 stk)
(V.S.P.,Normal Incidence V.S.P, 10 cm/s 1 stk)
(Two Way Travel Time, 10 cm/s 1 stk)

MAIN OPERATIONS FOR WELL: 003408 03A

Main operation: DRILLING

Sub operations	Minutes	Hrs	% of total
BOP ACTIVITIES	1350	22,5	3,73
BOP/WELLHEAD EQ	150	2,5	0,41
CASING	4230	70,5	11,70
CIRC/COND	420	7,0	1,16
DRILL	16080	268,0	44,48
OTHER	7020	117,0	19,42
REAM	750	12,5	2,07
SURVEY	390	6,5	1,08
TRIP	5760	96,0	15,93
Total	36150	602,5	100,00

Main operation: FORMATION EVAL

Sub operations	Minutes	Hrs	% of total
CIRC SAMPLES	150	2,5	0,60
CIRC/COND	90	1,5	0,36
CORE	2100	35,0	8,44
DST	14940	249,0	60,07
LOG	4740	79,0	19,06
TRIP	2850	47,5	11,46
Total	24870	414,5	100,00

Main operation: INTERRUPTION

Sub operations	Minutes	Hrs	% of total
FISH	810	13,5	25,96
MAINTAIN/REP	1830	30,5	58,65
OTHER	480	8,0	15,38
Total	3120	52,0	100,00

Main operation: MOVING

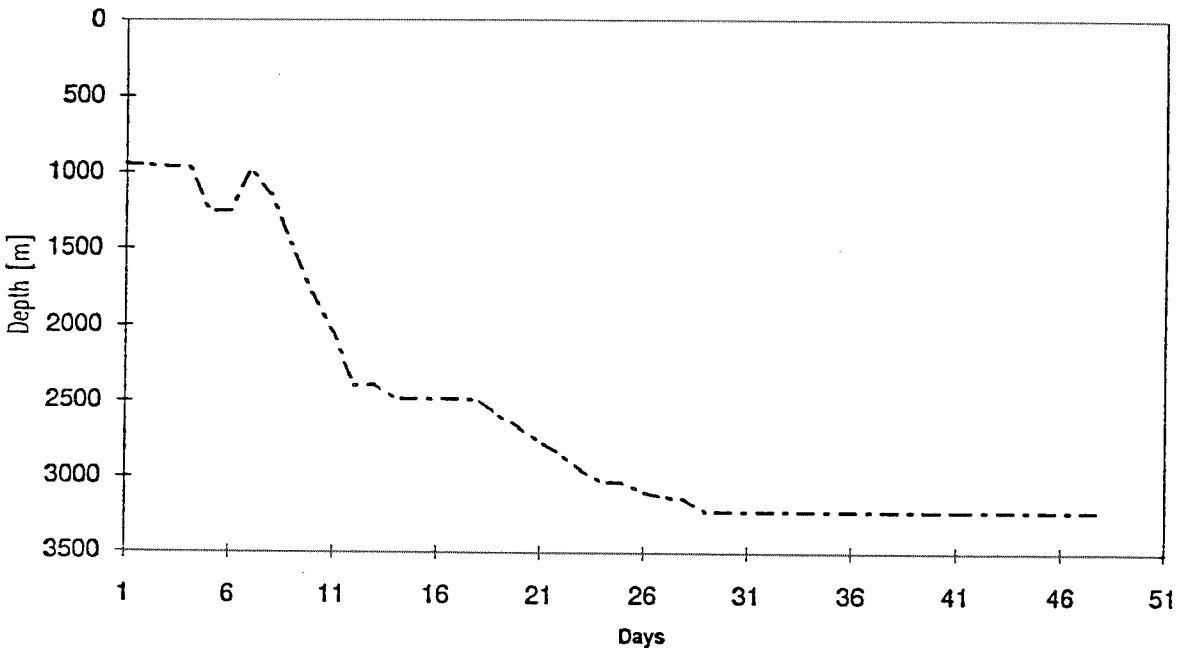
Sub operations	Minutes	Hrs	% of total
ANCHOR	660	11,0	100,00
Total	660	11,0	100,00

Main operation: PLUG & ABANDON

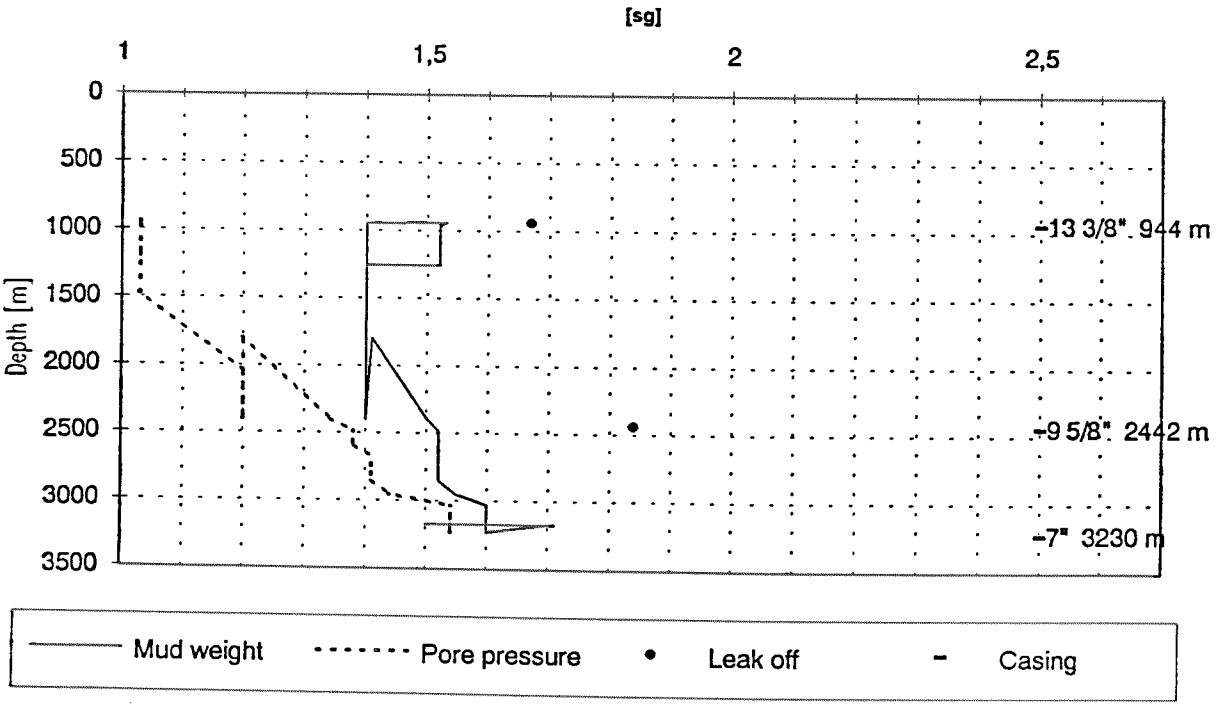
Sub operations	Minutes	Hrs	% of total
CEMENT PLUG	450	7,5	10,42
CIRC/COND	240	4,0	5,56
EQUIP RECOVERY	1860	31,0	43,06
OTHER	690	11,5	15,97
PERFORATE	450	7,5	10,42
TRIP	630	10,5	14,58
Total	4320	72,0	100,00

Total time used 1152 hrs (48 days)

Depth v.s. time plot for well: 003408 03A



Composite plot for well: 003408 03A



Well History 34/8-3 A

GENERAL:

Well 34/8-3 A was drilled on the A-structure which is a NNE-SSW oriented elongated fault block with the Pre-Creatceous strata dipping towards WNW. The A-Central fault divides the A-structure into the A-North and A-South compartments. The main reason for the side track was to answer the following critical questions regarding the oil potential of the Brent A-North discovery:

- *test additional 70 m of the Brent Group reservoir below the "oil down to" identified in well 34/8-3*
- *test if the Brent A-North discovery contains commercial quantities of oil*
- *assuming pressure communication between the Brent Group A-South and the Brent Group A-North discoveries in the water zone, the proposed side track position should penetrate the oil/water contact in the Brent Group reservoir.*

OPERATIONS:

Appraisal well 34/8-3 A was spudded 14 September 1988 by Polar Frontier Drilling semi-submersible rig Polar Pioneer and completed 31 October 1988 at a depth of 3230 m in Middle Jurassic rocks.

To reach T.D. as prognosed it was to be drilled with a maximum angle of 20.6°. It was hard to keep the angle stabile. At an angle of 25°, it was decided to do a correction run. During logging before setting of 9 5/8", the tool got stuck at 1284 m. The string had to be cut, and the instrument was fished up. The fishing operation went well, and the hole was logged down to 2451.1 m MD. The LDL-log did not work. It was anticipated that the cause was limestone stringers.

By using a bent sub the wanted angle was reached. The reservoir was encountered deeper than prognosed, because of the Heather Fm. found unexpectedly in the well. The gas/oil contact was at 3057 m MD and the oil/water contact was at 3099 m MD.

5 cores were cut in the interval 3034 - 3148.5 m. The drill string got stuck during cutting of the 5th core. It was decided not to cut any further cores.

NPD refused to accept the first test program suggested because the test's intentions were not fulfilled. A new suggestion had to be made.

It was very profitable to deviate 34/8-3 A from 34/8-3. There was new geological information. An oil/water contact was identified, and there was a Brent Group with all formations present.

The well was plugged and abandoned as an oil and gas discovery.

TESTING:

1 DST test was performed in the well. DST 1A in the interval 3087 - 3093 m and DST 1B in the intervals 3071.5 - 3078.5 + 3081.5 - 3087 m.

GEOLOGICAL TOPS

WELL: 34/8-3 A

	Depth m (RKB)
Nordland Group	*405.0*
Utsira Fm.	*1097.0*
Hordaland Group	*1146.0*
Rogaland Group	*1873.0*
Balder Fm.	*1873.0*
Sele Fm.	*1920.0*
Lista Fm.	*2000.0*
Våle Fm.	*2053.0*
Shetland Group	*2086.0*
Cromer Knoll Group	*2972.0*
Viking Group	*3003.0*
Draupne Fm.	*3003.0*
Heather Fm.	*3012.0*
Brent Group	*3031.5*
Tarbert Fm.	*3031.5*
Ness Fm.	*3071.5*
Etive Fm.	*3098.5*
Rannoch Fm.	*3131.0*
Broom Fm.	*3182.0*
Dunlin Group	*3183.0*
Drake Fm.	*3183.0*
Cook Fm.	*3227.0*
T.D.	*3230.0*