

## WDSS Report

Date: 26/09/96

PB/SKR

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Well no:	Operator:
<b>34/08-04 S</b>	<b>HYDRO</b>

### Well

Coordinates :	61° 19' 29.58" N 02° 25' 18.67" E	UTM coord. :	6799274.11 N 469049.02 E
License no :	120	Permit no :	659
Rig :	MÆRSK JUTLANDER	Rig type :	SEMI-SUB.
Contractor :	MÆRSK DRILLING		
Bottom hole temp:	114 °C	Elev. KB :	23 M
Spud. date :	90.12.06	Water depth :	310 M
Compl. date :	91.06.09	Total depth :	4150 M
Spud. class :	WILDCAT	Form. at TD :	
Compl. class :	PLUGGED	Prod.form. :	
Seisloca :	NH 8404-171/1171, SP. 10656		

### Licensees

13.000000 ELF PETROLEUM NORGE AS  
 18.000000 NORSK HYDRO PRODUKSJON AS  
 6.000000 SAGA PETROLEUM A.S.  
 50.000000 DEN NORSKE STATS OLJESELSKAP A.S  
 13.000000 NORSKE CONOCO A/S

### Casing and Leak-off Tests

Type	Casing diam	Depth below KB	Hole diam.	Hole depth below KB	Lot mud eqv. g/cm <sup>3</sup>
CONDUCTOR	30	417.0	36	421.0	
INTERM.	18 5/8	1146.0	24	1451.0	1.58
INTERM.	13 3/8	2161.0	17 1/2	2800.0	1.78
INTERM.	9 5/8	3662.0	12 1/4	3673.0	2.07
OPEN HOLE		4150.0	8 1/2	4150.0	

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**Conventional Cores**

Core no.	Intervals cored meters	Recovery m	%
1	3005 - 3019.7	14.7	100.0
2	3067 - 3084.6	17.6	100.0
3	3096 - 3122.8	26.8	100.0
4	3123.5 - 3142.6	19.1	100.0
5	3176 - 3188.8	12.8	100.0
6	3190 - 3207.6	17.6	100.0
7	3208 - 3235.7	27.7	100.0
8	3255 - 3272.4	17.4	100.0
9	3276 - 3285.0	9.0	100.0
10	3392 - 3317.7	25.7	100.0
11	3319 - 3332.4	13.4	100.0
12	3333 - 3358.5	25.5	100.0
13	3385 - 3412.0	27.0	100.0
14	3412 - 3438.8	26.8	100.0
15	3439 - 3465.5	26.5	100.0
16	3466 - 3485.5	19.5	100.0
17	4044 - 4071.5	27.5	100.0

**Mud**

Depth	Mud weight	Visc.	Mud type
420.0	1.05	1.0	WATER BASED
500.0	1.00	1.0	WATER BASED
1165.0	1.05	1.0	WATER BASED
1186.0	1.20	14.0	WATER BASED
1488.0	1.20	14.0	WATER BASED
1846.0	1.40	29.0	WATER BASED
2180.0	1.40	23.0	WATER BASED
2204.0	1.40	21.0	WATER BASED
2300.0	1.45	24.0	WATER BASED
2331.0	1.45	23.0	WATER BASED
2518.0	1.50	24.0	WATER BASED
2656.0	1.55	28.0	WATER BASED
2767.0	1.60	34.0	WATER BASED
2819.0	1.65	33.0	WATER BASED
2835.0	1.70	32.0	WATER BASED
2899.0	1.65	39.0	WATER BASED
2927.0	1.65	34.0	WATER BASED

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2945.0	1.70	30.0	WATER BASED
3005.0	1.65	34.0	WATER BASED
3021.0	1.65	34.0	WATER BASED
3050.0	1.70	28.0	WATER BASED
3057.0	1.70	27.0	WATER BASED
3067.0	1.65	33.0	WATER BASED
3085.0	1.65	34.0	WATER BASED
3105.0	1.65	30.0	WATER BASED
3124.0	1.65	30.0	WATER BASED
3134.0	1.70	24.0	WATER BASED
3144.0	1.65	40.0	WATER BASED
3150.0	1.70	21.0	WATER BASED
3160.0	1.70	30.0	WATER BASED
3173.0	1.65	40.0	WATER BASED
3184.0	1.70	25.0	WATER BASED
3187.0	1.65	39.0	WATER BASED
3208.0	1.65	40.0	WATER BASED
3233.0	1.65	42.0	WATER BASED
3236.0	1.65	38.0	WATER BASED
3255.0	1.70	20.0	WATER BASED
3258.0	1.70	20.0	WATER BASED
3412.0	1.65	38.0	WATER BASED
3439.0	1.64	38.0	WATER BASED
3486.0	1.65	40.0	WATER BASED
3518.0	1.65	37.0	WATER BASED
3560.0	1.59	20.0	WATER BASED
3561.0	1.65	35.0	WATER BASED
3615.0	1.65	34.0	WATER BASED
3671.0	1.65	41.0	WATER BASED
3673.0	1.68	42.0	WATER BASED
4150.0	1.59	20.0	WATER BASED

**Drill Stem Test (intervals and pressures)**

Test no.	Test interval meter	Choke size	Pressure (psi) WHP	BTHP	FFP
1.0	3219.0 - 3241.0	15.8	2509	4205	
2.1	3133.0 - 3143.0	17.4	3611	6134	
2.2	3066.0 - 3142.0	20.6	3393	6366	
3.0	3000.0 - 3017.0	21.4	2958	5728	
4.0	2903.0 - 2917.0	25.4	952	1982	

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### Drill Stem Test (recovery)

Test no.	Oil Sm <sup>3</sup> /d	Gas Sm <sup>3</sup> /d	Oil grav. g/cm <sup>3</sup>	Gas grav. rel. air	GOR m <sup>3</sup> /m <sup>3</sup>
1.0	441	410200	0.782	0.728	930
2.1	754	605000	0.788	0.734	803
2.2	985	792000	0.785	0.739	805
3.0	908	708000	0.777	0.738	781
4.0	205	480000	0.770	0.690	2418

### Drill Bit Cuttings and Wet Samples

Sample type	Interval below KB	Number of samples
WET SAMPLES	1170 - 4150	660
CUTTINGS	1100 - 4140	540

### Shallow Gas

Interval below KB	Remarks

### Available Logs

Log type	Intervals logged	1/200	1/500	
AMS	1149.0 - 3925.0			
CBL VDL CCL GR	2695.0 - 3650.0			
CBL VDL GR	2695.0 - 3500.0			
CDM AP/MSD	3665.0 - 3925.0			
CDM AP/MSD SHDT	2164.0 - 3668.0			
CH RFT HP GR	3230.0 - 3374.0			
DIL LSS SP GR	1142.0 - 2145.0			
DIL LSS SP GR	3659.0 - 3925.0			
DIL LSS SP SGR	2164.0 - 3582.0			

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DIL LSS SP SGR MD+TV	1149.0 - 3930.0			
DLL MSFL DIL LDL CNL	2850.0 - 3929.0			
DLL MSFL SP GR	2850.0 - 3226.0			
DLL MSFL SP SGR	2164.0 - 3668.0			
FMS AMS GR	3659.0 - 3725.0			
FMS AMS SGR	2164.0 - 3669.0			
LDL CNL AMS GR	2850.0 - 3215.0			
LDL CNL GR	1149.0 - 2145.0			
LDL CNL NGS	3659.0 - 3929.0			
LDL CNL SGR	2164.0 - 3561.0			
LDL CNL SGR MD+TVD	1149.0 - 3929.0			
MUD	332.0 - 4150.0			
MWD	1150.0 - 2177.0			
MWD MD+TVD	332.0 - 4150.0			
NGL	2850.0 - 3929.0			
NGS	3659.0 - 3929.0			
NGT RATIO	2164.0 - 3561.0			
PLT BHS	2700.0 - 3010.0			
PLT BHS	2700.0 - 3150.0			
PLT SURVEY	3050.0 - 3153.0			
RFT HP AMS GR	2907.0 - 3231.0			
RFT HP GR	3693.0 - 3897.0			
SYNTHETIC SEISMOGRAM				
TWO-WAY TRAVEL TIME				
WELLSITE LITHOLOGY	1050.0 - 2100.0			
VSP				

## Main operations for well: 34/8-4 S

### Main operation: DRILLING

Sub operation:	Minutes:	Hours:	% of total:
BOP ACTIVITIES	4290	71,5	5,82
BOP/WELLHEAD EQ	2340	39,0	3,17
CASING	10230	170,5	13,87
CIRC/COND	2190	36,5	2,97
DRILL	27870	464,5	37,79
HOLE OPEN	1500	25,0	2,03
OTHER	360	6,0	0,49
REAM	2430	40,5	3,30
TRIP	22530	375,5	30,55
<b>Total</b>	<b>73740</b>	<b>1229,0</b>	<b>100,00</b>

### Main operation: FORMATION EVAL

Sub operation:	Minutes:	Hours:	% of total:
CIRC SAMPLES	1470	24,5	1,41
CIRC/COND	1470	24,5	1,41
CORE	15390	256,5	14,81
DST	59190	986,5	56,94
LOG	9390	156,5	9,03
OTHER	540	9,0	0,52
RFT/FIT	3210	53,5	3,09
TRIP	13290	221,5	12,78
<b>Total</b>	<b>103950</b>	<b>1732,5</b>	<b>100,00</b>

### Main operation: INTERRUPTION

Sub operation:	Minutes:	Hours:	% of total:
FISH	8310	138,5	9,78
MAINTAIN/REP	61530	1025,5	72,45
OTHER	2670	44,5	3,14
WAIT	12420	207,0	14,62
<b>Total</b>	<b>84930</b>	<b>1415,5</b>	<b>100,00</b>

### Main operation: MOVING

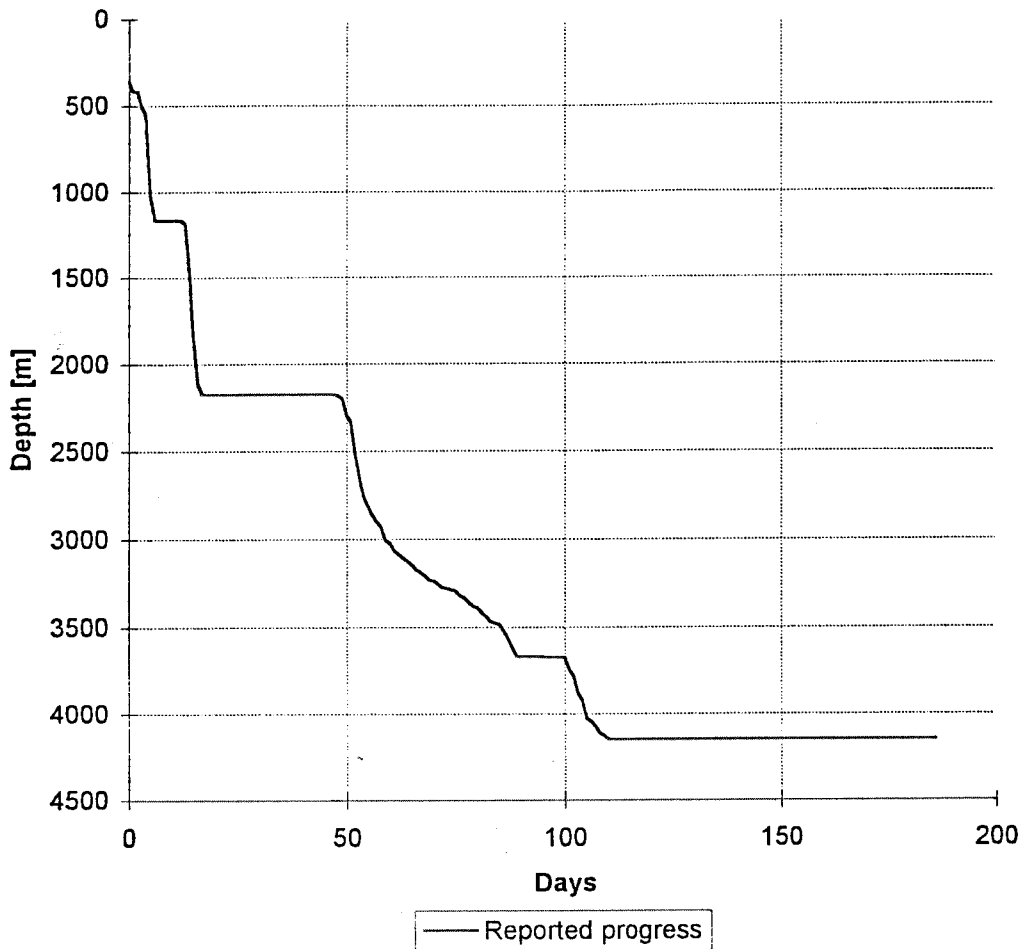
Sub operation:	Minutes:	Hours:	% of total:
ANCHOR	3780	63,0	50,40
TRANSIT	3720	62,0	49,60
<b>Total</b>	<b>7500</b>	<b>125,0</b>	<b>100,00</b>

### Main operation: PLUG & ABANDON

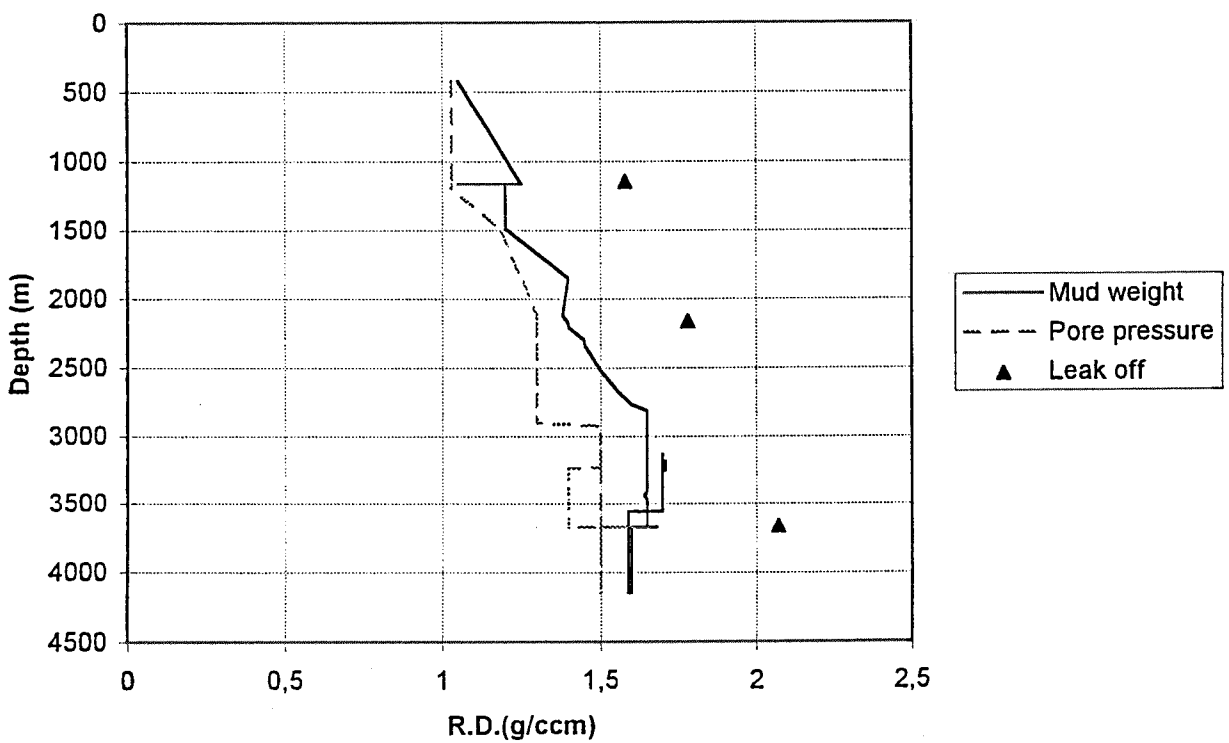
Sub operation:	Minutes:	Hours:	% of total:
CEMENT PLUG	540	9,0	10,98
CIRC/COND	210	3,5	4,27
EQUIP RECOVERY	1710	28,5	34,76
MECHANICAL PLUG	360	6,0	7,32
OTHER	60	1,0	1,22
TRIP	2040	34,0	41,46
<b>Total</b>	<b>4920</b>	<b>82,0</b>	<b>100,00</b>

Total time used:  Hours

Depth vs time for well: 34/8-4 S



Composite plot for well: 34/8-4 S



# Well History 34/8-4 S

## General:

Well 34/8-4 S was designed to be drilled as a deviated hole as a consequence of having two different targets. Boulders were expected between 350 m and 395 m RKB. Two intervals with possibility for shallow gas had been identified at 446 m and 477 m RKB. A 8 1/2" pilothole was drilled down to 500 m RKB checking for shallow gas. The main objective for the well was to test the hydrocarbon potential in the Lomvi Formation on the A-structure and thereby fulfill the work commitment on this structural element of the block. The secondary objectives were to:

- 1 test the hydrocarbon potential of the Statfjord and Lunde B/C Formations on the A-south compartment.
- 2 obtain pressure measurement from the Lunde- and Lomvi Formations in order to evaluate the sealing potential of the Middle- to Late Triassic sequence on the A-structure.

The well was designed for temporary abandonment, and was planned for possible re-use as a subsea producer. In order to fulfill these objectives the well was to be drilled such that:

- top Statfjord-, Lunde B-/C- and the Lomvi Formations were penetrated within structural closure.
- not more than 10 mill Sm<sup>3</sup> oil were left untested up dip.
- a reliable tie to the seismic could be performed.

## Operations:

Wildcat well 34/8-4 S was spudded 6 December 1991 by the semi-submersible rig Mærsk Jutlander and completed 9 June 1992 at a depth of 4150 m RKB in rocks of Triassic age. Planned TD at 4478 m MD RKB was not reached due to operational problems. The pipe was backed off at 3936 m RKB and the borehole was logged from this depth and up to the 9 5/8" casing shoe. Hydrocarbons were encountered in the Brent Group, Rannoch sandstones, and in thickly developed Triassic sandstones of the Hegre Group's Lunde Formation. No fluid contacts were observed in either groups. The Lomvi Formation proved to be waterbearing. A total of seventeen cores were cut, sixteen in the Lunde Formation and one in the Lomvi Formation. A total of 60 sidewall cores were attempted in two runs, and 37 were recovered. No boulders or shallow gas was encountered while drilling the 8 1/2" pilot hole. The well was plugged and abandoned as a gas and condensate discovery.

## Testing:

Five DST tests were performed in this well.



# Geological Tops.

## Well:.34/8-4S

	Depth m (RKB).
Nordland Group	355.0
Utsira Fm	1071.0
Hordaland Group	1108.0
Grid Fm	1488.0
Undefined	1552.0
Rogaland Group	1819.0
Balder Fm	1819.0
Sele Fm	1861.5
Lista Fm	1874.5
Shetland Group	2030.0
Jorsalfare Fm	2030.0
Kyrre Fm	2242.0
Cromer Knoll Group	2899.0
Mime FM	2899.0
Viking Group	2902.0
Draupne FM	2902.0
Brent Group	2903.0
Rannoch Fm	2903.0
Broom Fm	2922.0
Dunlin Group	2923.5
Drake Fm.	2923.5
Triassic Group	2937.5
Lunde Fm.	2937.5
Lomvi Fm.	3947.0
Teist Fm.	4133.0
T.D.	4150.0