

Well no :	2/12-2 S	Operator :	HYDRO
Coordinates :	56° 13' 54.28" N 03° 42' 16.63" E	UTM coord. :	623223396 N 54368397 E
Licence no :	113	Permit no :	629
Rig :	MÆRSK JUTLANDER	Rig type :	SEMI-SUB.
Contractor :	MÆRSK DRILLING A/S		
Bottom hole temp:	162 °C	Elev. KB :	22 M
Spud. date :	90.02.15	Water depth :	70 M
Compl. date :	90.09.14	Total depth :	5757 M
Spud. class :	WILDCAT	Form. at TD	PRE-JURA.
Compl. class :	SUSPENDED. SHOWS	Prod.form. :	E.CRET.
Seisloca :	NH 8702 ROW 306 COLUMN 453		

## LICENSEES

25,000000	NORSK HYDRO PRODUKSJON A.S
50,000000	DEN NORSKE STATS OLJESELSKAP A.S
25,000000	AMERADA HESS NORGE 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	177,0	36	180,0	
INTERM.	20	1295,0	26	1300,0	1,76
INTERM.	13 3/8	2751,0	17 1/2	2755,0	1,94
INTERM.	9 5/8	4305,0	12 1/4	4310,0	2,17
LINER	7	5008,0	8 1/2	5757,0	2,25

## CONVENTIONAL CORES

Core no.	Intervals cored		Recovery	
	meters		M	%
1	5530,0	- 5539,2	9,2	100

## MUD

Depth	Mud weight	Visc.	Mud type
177,000	1,20	17,0	WATER BASED
1975,000	1,58	25,0	WATER BASED
2102,000	1,63	32,0	WATER BASED
2102,000	1,62	33,0	WATER BASED
2105,000	1,58	29,0	WATER BASED
2107,000	1,60	40,0	WATER BASED
2123,000	1,58	28,0	WATER BASED
2126,000	1,59	28,0	WATER BASED
2467,000	1,58	33,0	WATER BASED
2540,000	1,59	27,0	WATER BASED
2558,000	1,85	13,0	WATER BASED

Depth	Mud weight	Visc.	Mud type
2607,000	1,65	33,0	WATER BASED
2651,000	1,60	33,0	WATER BASED
2657,000	1,59	30,0	WATER BASED
2682,000	1,65	33,0	WATER BASED
2698,000	1,65	37,0	WATER BASED
2750,000	1,59	29,0	WATER BASED
2781,000	1,53		WATER BASED
2781,000	1,62	25,0	WATER BASED
2784,000	1,53	25,0	WATER BASED
2784,000	1,55	28,0	WATER BASED
2784,000	1,53	32,0	WATER BASED
2784,000	1,55	28,0	WATER BASED
2784,000	1,53	28,0	WATER BASED
2787,000	1,65	34,0	WATER BASED
2787,000	1,53	30,0	WATER BASED
2787,000	1,65	33,0	WATER BASED
2790,000	1,58	33,0	WATER BASED
2800,000	1,62	30,0	WATER BASED
3569,000	1,65	38,0	WATER BASED
3585,000	1,66	28,0	WATER BASED
3585,000	1,66	33,0	WATER BASED
3585,000	1,68	43,0	WATER BASED
3585,000	1,70	35,0	WATER BASED
3755,000	1,66	37,0	WATER BASED
3985,000	1,65	40,0	WATER BASED
4003,000	1,85	13,0	WATER BASED
4143,000	1,65	38,0	WATER BASED
4167,000	1,66	37,0	WATER BASED
4207,000	1,66	38,0	WATER BASED
4223,000	1,80	40,0	WATER BASED
4223,000	1,75	39,0	WATER BASED
4313,000	1,80	32,0	WATER BASED
4326,000	2,02	29,0	WATER BASED
4346,000	2,02	29,0	WATER BASED
4417,000	2,06	27,0	WATER BASED
4791,000	2,08	23,0	WATER BASED
4815,000	2,07	23,0	WATER BASED
5757,000	2,08	21,0	WATER BASED

## DRILL BIT CUTTINGS AND WET SAMPLES

Sample type	Interval below KB	Number of samples
WET SAMPLES	1330 - 5720	720
CUTTINGS	1330 - 5645	630

## SHALLOW GAS

Interval below KB	Remarks
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# AVAILABLE LOGS

Log type	Intervals		1/200	1/500	Div
AMS	2602,0	- 3380,0		X	
AMS	3575,0	- 4270,0		X	
AMS	4306,0	- 4996,0		X	
AMS	5014,0	- 5494,0		X	
AMS	5015,0	- 5474,0		X	
AMS	5325,0	- 5764,0		X	
AMS	5447,0	- 5752,0		X	
CBL VDL	4095,0	- 4993,0	X		
CBL VDL CCL	3500,0	- 4290,0	X		
CDM AP/SHDT	5015,0	- 5500,0	X	X	
CDM AP/SHDT	5447,0	- 5765,0	X	X	
CDM AP / CYBERDIP	5015,0	- 5503,0	X		
CDM AP/CYBERDIP	4900,0	- 5017,0	X		
CDM AP/CYPERDIP	5447,0	- 5765,0	X		
DIL LSS SP GR	177,0	- 5764,0	X	X	
DIL SDT GR	2602,0	- 3544,0	X	X	
DIL SDT GR	3428,0	- 4328,0	X	X	
DIL SDT GR	5014,0	- 5504,0	X	X	
DIL SDT GR	5325,0	- 5764,0	X	X	
DIL SDT GR SP AMS	4306,0	- 5016,0	X	X	
FMS 4 GR AMS	4306,0	- 5017,0	X		
FMS GR	5014,0	- 5503,0	X		
FMS GR	5447,0	- 5765,0	X		
LDL CNL	2602,0	- 3410,0	X	X	
LDL CNL	5014,0	- 5484,0	X	X	
LDL CNL	4306,0	- 4996,0	X	X	
LDL CNL	5325,0	- 5764,0	X	X	
LDL CNL	3428,0	- 4288,0	X	X	
MUD	93,0	- 5757,0		X	
MWD LOG	97,0	- 5010,0		X	
RFT GR	5505,0	- 5592,0	X		
NGS PLAYBACK	5325,0	- 5734,0	X	X	
DRILLING DATA PRESS.	93,0	- 2840,0			1:5000
VELOCITY	2350,0	- 5350,0			1:1000
SYNTHETIC SEISMOGRAM	10 cm/s				2
V.S.P	10 cm/s	- 20 cm/s			14
TWO WAY TRAVEL TIME	10 cm/s	- 20 cm/s			2

## Main operations for well: 2/12-2 S

### Main operation: DRILLING

Sub operation:	Minutes:	Hours:	% of total:
BOP ACTIVITIES	10710	178,5	6,26
BOP/WELLHEAD EQ	2880	48,0	1,68
CASING	25890	431,5	15,12
CIRC/COND	13470	224,5	7,87
DRILL	61950	1032,5	36,19
HOLE OPEN	3000	50,0	1,75
OTHER	1890	31,5	1,10
PRESS DETECTION	90	1,5	0,05
REAM	6780	113,0	3,96
SURVEY	2310	38,5	1,35
TRIP	41640	694,0	24,33
WAIT	570	9,5	0,33
<b>Total</b>	<b>171180</b>	<b>2853,0</b>	<b>100,00</b>

### Main operation: FORMATION EVAL

Sub operation:	Minutes:	Hours:	% of total:
CIRC SAMPLES	330	5,5	2,10
CIRC/COND	390	6,5	2,49
CORE	330	5,5	2,10
LOG	11520	192,0	73,42
TRIP	3120	52,0	19,89
<b>Total</b>	<b>15690</b>	<b>261,5</b>	<b>100,00</b>

### Main operation: INTERRUPTION

Sub operation:	Minutes:	Hours:	% of total:
FISH	47910	798,5	49,21
MAINTAIN/REP	31560	526,0	32,42
OTHER	750	12,5	0,77
SIDETRACK	13650	227,5	14,02
WAIT	3480	58,0	3,57
<b>Total</b>	<b>97350</b>	<b>1622,5</b>	<b>100,00</b>

### Main operation: MOVING

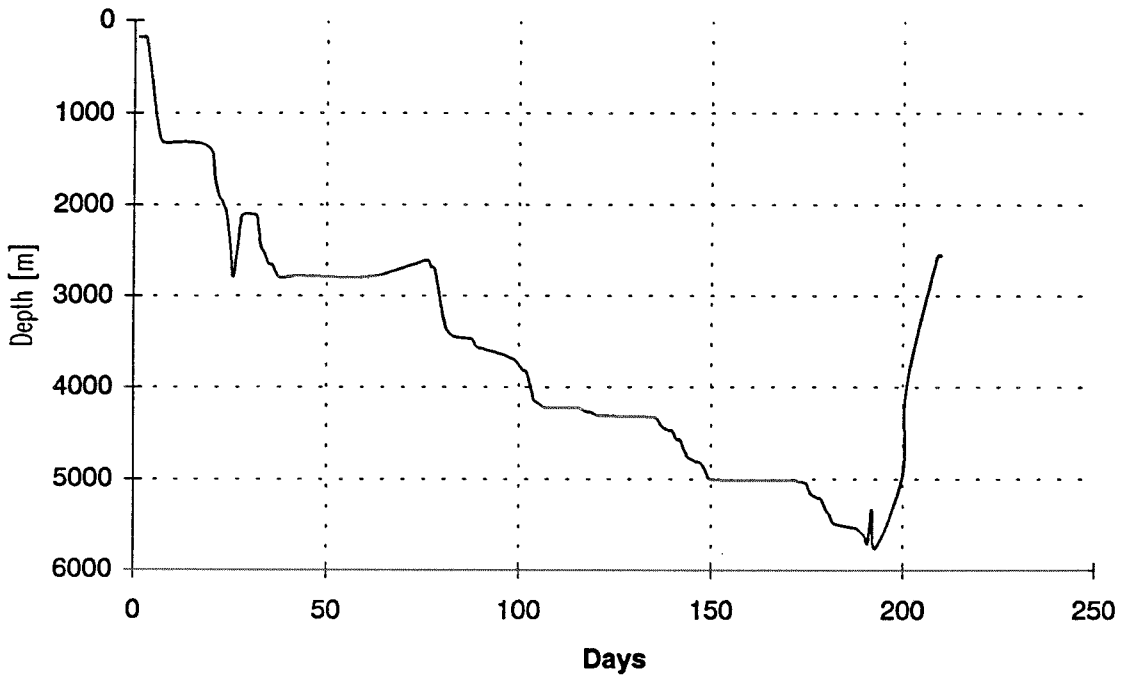
Sub operation:	Minutes:	Hours:	% of total:
ANCHOR	960	16,0	13,28
TRANSIT	6270	104,5	86,72
<b>Total</b>	<b>7230</b>	<b>120,5</b>	<b>100,00</b>

### Main operation: PLUG & ABANDON

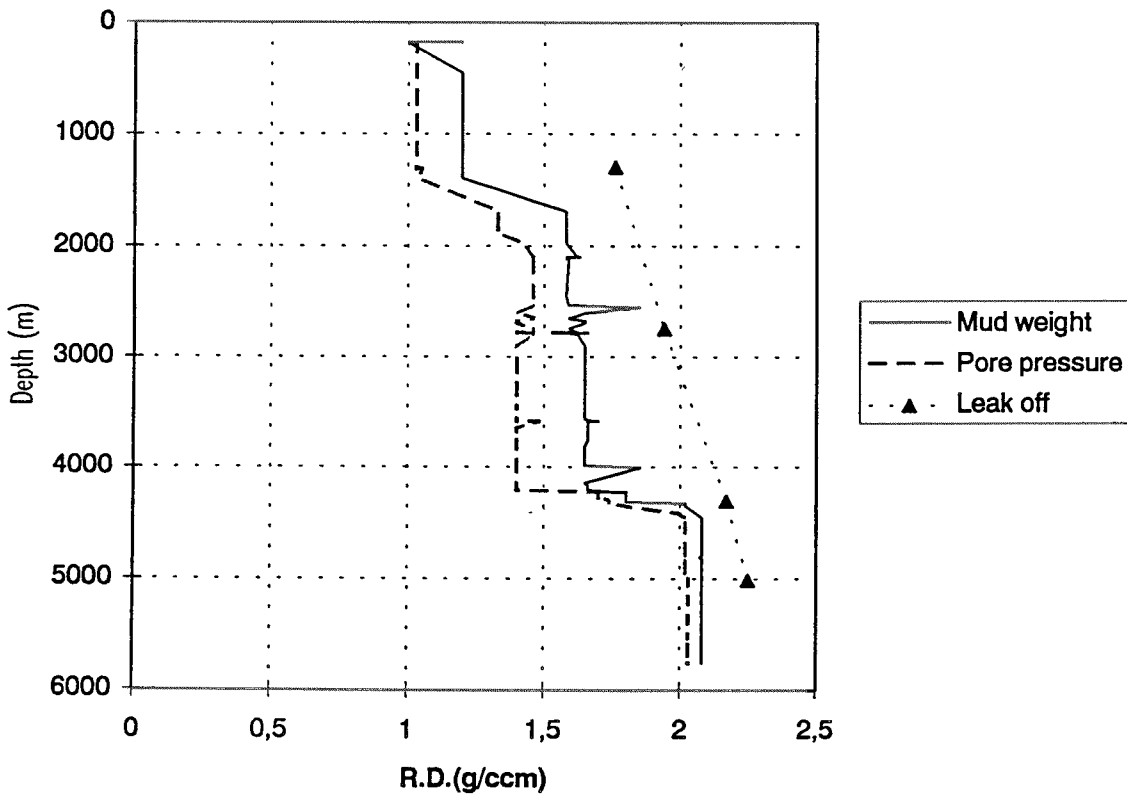
Sub operation:	Minutes:	Hours:	% of total:
CEMENT PLUG	600	10,0	3,31
CIRC/COND	1740	29,0	9,59
CUT	1320	22,0	7,27
EQUIP RECOVERY	4440	74,0	24,46
MECHANICAL PLUG	210	3,5	1,16
OTHER	1170	19,5	6,45
TRIP	8670	144,5	47,77
<b>Total</b>	<b>18150</b>	<b>302,5</b>	<b>100,00</b>

Total time used:  Hours

Depth vs time for well: 2/12-2 S



Composite plot for well: 2/12-2 S



# Well History 2/12-2 S

## General:

Well 2/12-2 S was designed to drill in the "Mjølner" Field on segment E which is separated from segment A by a major fault. It was not known if this fault is sealing or not. The well was drilled as a directional well with spudd location 400m south-west of the 2/12-1 well location. The main objectives for the well was to;

- confirm the mapped hydrocarbon in place in the western part of block 2/12, west of the 2/12-1 compartment.
- define the reservoir level and reservoir quality.
- calibrate the Jurassic seismic reflectors in order to improve further mapping.
- collect geological information important for further reservoir evaluation and to update the geological model.
- update the resource estimates for the entire 2/12 structure to secure a solid foundation for further planning.

There was no secondary target levels known at the time of planning. The well was designed for further use as an oil producer and/ or for extended/ long term testing.

A minimum of one core was to be taken in the Late/ Middle Jurassic sandstone reservoir. Additional cores to be cut if significant hydrocarbon shows were encountered, or if additional lithological/stratigraphical information are needed. Sidewall cores were to be taken from approximately 2780 m RKB to TD.

## Operations:

Appraisal well 2/12-2 S was spudded 15 February 1990 by Mærsk Jutlander and completed 14 September 1990 at a depth of 5757 m RKB in rocks of Triassic age. One conventional core was cut in the interval 5530.0 to 5542.0 m RKB with 76.5 % recovery, no shows. A total of 117 sidewall cores were attempted in five runs. Only 20 sidewall cores were recovered. No shallow gas was encountered at the amplitude anomalies at the depth of 468 and 534 m MD. The main target was encountered waterbearing at 5525 m MD RKB. The well was kicked off at 219 m RKB. Further down the string was backed off at 2200 m RKB. The well was plugged back from 2273 to 2080 m RKB. Then the well was sidetracked from 2102 m RKB and experienced several thight hole events until the string was backed off again at 2765 m RKB. The 13 3/8" casing were cut at 2602 m RKB, and a window was milled from 2602 to 2632 m RKB. A balanced cementplug was set from 2700 to 2500 m RKB, and the well was kicked off in the window. The well was temporarily plugged and abandoned as a dry hole.

## Testing:

No DST tests were performed in this well.

# Geological Tops.

## Well:2/12-2 S

	Depth m (RKB).
Nordland Group	93,0
Hordaland Group	1730,0
Rogaland Group	3299,0
Balder Fm	3299,0
Sele Fm	3313,0
Lista Fm	3363,0
Våle Fm	3419,0
Shetland Group	3429,0
Ekofisk Fm	3429,0
Tor Fm	3446,0
Hod Fm	3910,0
Blodøks Fm	4184,0
Hidra Fm	4187,0
Cromer Knoll Group	4215,0
Rødby Fm	4215,0
Sola Fm	4232,0
Tuxen Fm	4253,0
Åsgard Fm	4282,0
Tyne Group	4325,0
Mandal Fm	4325,0
Farsund Fm	4355,0
Haugesund Fm	5175,0
Triassic Group	5537,0
T.D. MD (DD) RKB	5757,0