

# WDSS Report

Date: 22/10/96

PB/SKR

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<b>Well no:</b> <b>6506/11-02</b>	<b>Operator:</b> <b>STATOIL</b>
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## Well

Coordinates :	65° 03' 25.32" N 06° 37' 22.39" E	UTM coord. :	7217095.51 N 388157.27 E
License no :	134	Permit no :	681
Rig :	ROSS RIG	Rig type :	SEMI-SUB.
Contractor :	TRANSNOR RIG AS		
Bottom hole temp:	160 °C	Elev. KB :	23 M
Spud. date :	91.05.08	Water depth :	296 M
Compl. date :	91.10.26	Total depth :	4810 M
Spud. class :	WILDCAT	Form. at TD :	E.JURASSIC
Compl. class :	P&A. OIL/GAS DISC.	Prod.form. :	
Seisloca :	ST 8801-280, SP. 220		

## Licenseses

10.000000 CONOCO PETROLEUM NORGE AS  
 10.000000 ENTERPRISE OIL NORWEGIAN AS  
 50.000000 DEN NORSKE STATS OLJESELSKAP A.S  
 30.000000 NORSK AGIP AS

## 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	380.0	36	381.0	
INTERM.	20	810.0	27	820.0	1.51
INTERM.	13 3/8	2231.0	17 1/2	2335.0	1.85
INTERM.	9 5/8	4223.0	12 1/4	4290.0	2.00
LINER	7	4807.0	8 1/2	4807.0	

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### Conventional Cores

Core no.	Intervals cored meters	Recovery m	%
1	4241.0 - 4242.7	1.7	100.0
2	4242.9 - 4276.3	33.4	100.0
3	4310.0 - 4337.0	27.0	100.0
4	4361.0 - 4380.9	19.9	100.0
5	4386.0 - 4411.0	25.0	100.0
6	4416.0 - 4443.0	27.0	100.0
7	4488.0 - 4496.0	8.0	100.0
8	4498.0 - 4507.4	9.4	100.0
9	4548.0 - 4575.1	27.1	100.0
10	4575.5 - 4602.9	27.4	100.0
11	4603.0 - 4630.0	27.0	100.0
12	4631.0 - 4659.0	28.0	100.0
13	4659.0 - 4682.8	23.8	100.0
14	4686.5 - 4690.2	3.7	100.0
15	4693.5 - 4717.0	23.5	100.0

### Mud

Depth	Mud weight	Visc.	Mud type
442.0	1.03		WATER BASED
830.0	1.03	7.0	WATER BASED
1336.0	1.25		WATER BASED
1722.0	1.25	23.0	WATER BASED
1932.0	1.49	21.0	WATER BASED
2146.0	1.49	28.0	WATER BASED
2255.0	1.53	22.0	WATER BASED
2307.0	1.49	13.0	WATER BASED
2314.0	1.65	20.0	WATER BASED
2400.0	1.65	23.0	WATER BASED
2734.0	1.65	25.0	WATER BASED
2960.0	1.65	27.0	WATER BASED
3040.0	1.65	27.0	WATER BASED
3216.0	1.65	25.0	WATER BASED
3237.0	1.65	23.0	WATER BASED
3244.0	1.65	21.0	WATER BASED
3258.0	1.65	17.0	WATER BASED
3338.0	1.65	22.0	WATER BASED
3376.0	1.65	31.0	WATER BASED

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3460.0	1.70	30.0	WATER BASED
3580.0	1.71	25.0	WATER BASED
3653.0	1.71	19.0	WATER BASED
3723.0	1.71	24.0	WATER BASED
3797.0	1.71	24.0	WATER BASED
3869.0	1.71	27.0	WATER BASED
3946.0	1.71	28.0	WATER BASED
4009.5	1.73	20.0	WATER BASED
4029.0	1.71	23.0	WATER BASED
4047.5	1.73	20.0	WATER BASED
4073.0	1.77	28.0	DUMMY
4111.0	1.71	27.0	WATER BASED
4176.0	1.71	28.0	WATER BASED
4225.0	1.71	26.0	WATER BASED
4238.0	1.71	30.0	WATER BASED
4241.0	1.19	11.0	WATER BASED
4242.7	1.19	15.0	WATER BASED
4272.0	1.19	16.0	WATER BASED
4306.0	1.19	20.0	DUMMY
4338.0	1.19	16.0	WATER BASED
4361.0	1.19	15.0	DUMMY
4386.0	1.19	15.0	DUMMY
4496.0	1.19	19.0	DUMMY
4548.0	1.19	20.0	DUMMY
4603.0	1.19	19.0	DUMMY
4659.0	1.19	20.0	DUMMY
4693.5	1.19	21.0	DUMMY
4696.7	1.19	20.0	DUMMY
4755.0	1.19	21.0	DUMMY
4780.0	1.19	21.0	DUMMY
4793.0	1.22	11.0	DUMMY
4810.0	1.21	15.0	DUMMY

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

Test no.	Test interval meter	Choke size	Pressure (psi) WHP	BTHP	FFP
1.0	4668.0 - 4704.0	31.8	1522.5	7099	
2.0	4553.2 - 4597.2	31.8	986	6963	
3.0	4486.0 - 4510.0	12.7			
4.0	4371.0 - 4420.0	12.7	2105	6917	
5.0	4005.0 - 4048.0	31.7	507	9635	
6.0	3373.5 - 3398.5	10.3	725	7029	

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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	554	770733	0.807	0.760	1392
2.0	481	440000			915
3.0	No flow				
4.0	714	1028000	0.783	0.734	1440
5.0	136	69845	0.817	0.783	513
6.0	350		0.817	0.800	940
2.2	40	6825	0.818	0.775	170

### Drill Bit Cuttings and Wet Samples

Sample type	Interval below KB	Number of samples
WET SAMPLES	840 - 4810	240

### Shallow Gas

Interval below KB	Remarks

### Available Logs

Log type	Intervals logged	1/200	1/500
AC CBL VDL GR	1750.0 - 4220.0		
BHC AC DIFL CAL GR	807.0 - 2299.0		
CDL GR	807.0 - 2299.0		
CDM AP	2228.0 - 4756.0		
CDM AP/COMPUTED DIP	3924.0 - 4124.0		
DIFL BHC AC GR	2227.0 - 4234.0		

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DIFL BHC ACL GR	806.0 - 4812.0			
DIFL LS BHC ACL GR	4226.0 - 4812.0			
DLL GR	3300.0 - 4125.0			
DLL MLL CAL GR	4226.0 - 4756.0			
DLL MLL GR	2305.0 - 3474.0			
FMT	2374.0 - 4749.0			
GR	4361.0 - 4597.0			
GR CCL COR. FOR TCP	3105.0 - 4395.0			
MWD	384.0 - 4488.0			
PRESSURE EVAL PLOT	320.0 - 4800.0			
SHDT	3925.0 - 4125.0			
SHDT GR	2228.0 - 3572.0			
SHDT/DIPLOG	4226.0 - 4756.0			
SYNTHETIC SEISMOGRAM VELOCITY LOG.	680.0 - 4800.0			
VSP				
VSP-ZERO OFFEST				
ZCDL CN GR	3440.0 - 4234.0			
ZDL CN CAL GR	2227.0 - 3582.0			
ZDL CN GR CAL	806.0 - 4757.0			
ZDL CN GR X-Y CAL.	4226.0 - 4756.0			

**Main operations for well: 6506/11-2****Main operation: DRILLING**

Sub operation:	Minutes:	Hours:	% of total:
BOP ACTIVITIES	1830	30,5	2,08
BOP/WELLHEAD EQ	1380	23,0	1,57
CASING	28680	478,0	32,66
CIRC/COND	2850	47,5	3,25
DRILL	31920	532,0	36,35
HOLE OPEN	2550	42,5	2,90
OTHER	270	4,5	0,31
PRESS DETECTION	330	5,5	0,38
REAM	1890	31,5	2,15
SURVEY	360	6,0	0,41
TRIP	15090	251,5	17,18
WAIT	660	11,0	0,75
<b>Total</b>	<b>87810</b>	<b>1463,5</b>	<b>100,00</b>

**Main operation: FORMATION EVAL**

Sub operation:	Minutes:	Hours:	% of total:
CIRC SAMPLES	120	2,0	0,11
CIRC/COND	3990	66,5	3,70
CORE	5490	91,5	5,09
DST	72240	1204,0	67,04
LOG	8430	140,5	7,82
OTHER	1080	18,0	1,00
RFT/FIT	4020	67,0	3,73
TRIP	12390	206,5	11,50
<b>Total</b>	<b>107760</b>	<b>1796,0</b>	<b>100,00</b>

**Main operation: INTERRUPTION**

Sub operation:	Minutes:	Hours:	% of total:
FISH	4470	74,5	22,07
MAINTAIN/REP	3870	64,5	19,11
OTHER	360	6,0	1,78
SIDETRACK	8400	140,0	41,48
WAIT	2970	49,5	14,67
WELL CONTROL	180	3,0	0,89
<b>Total</b>	<b>20250</b>	<b>337,5</b>	<b>100,00</b>

**Main operation: MOVING**

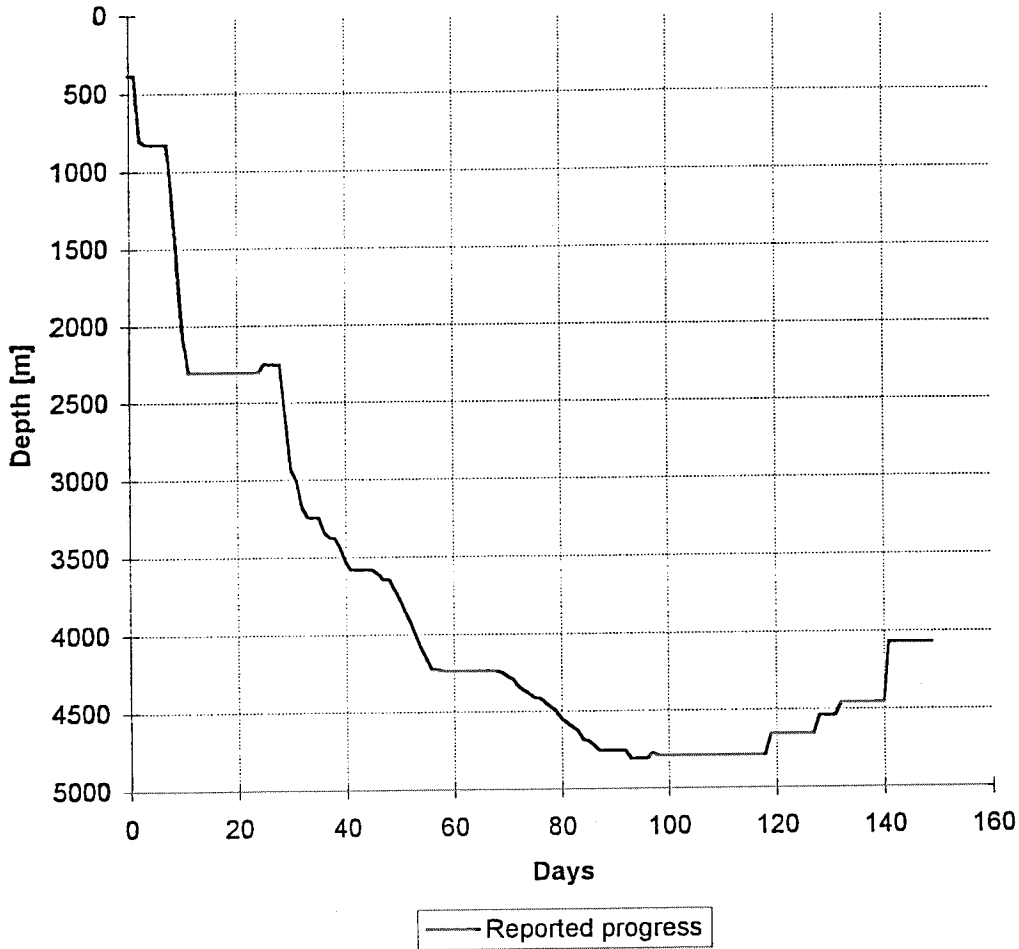
Sub operation:	Minutes:	Hours:	% of total:
ANCHOR	870	14,5	37,66
TRANSIT	1440	24,0	62,34
<b>Total</b>	<b>2310</b>	<b>38,5</b>	<b>100,00</b>

**Main operation: PLUG & ABANDON**

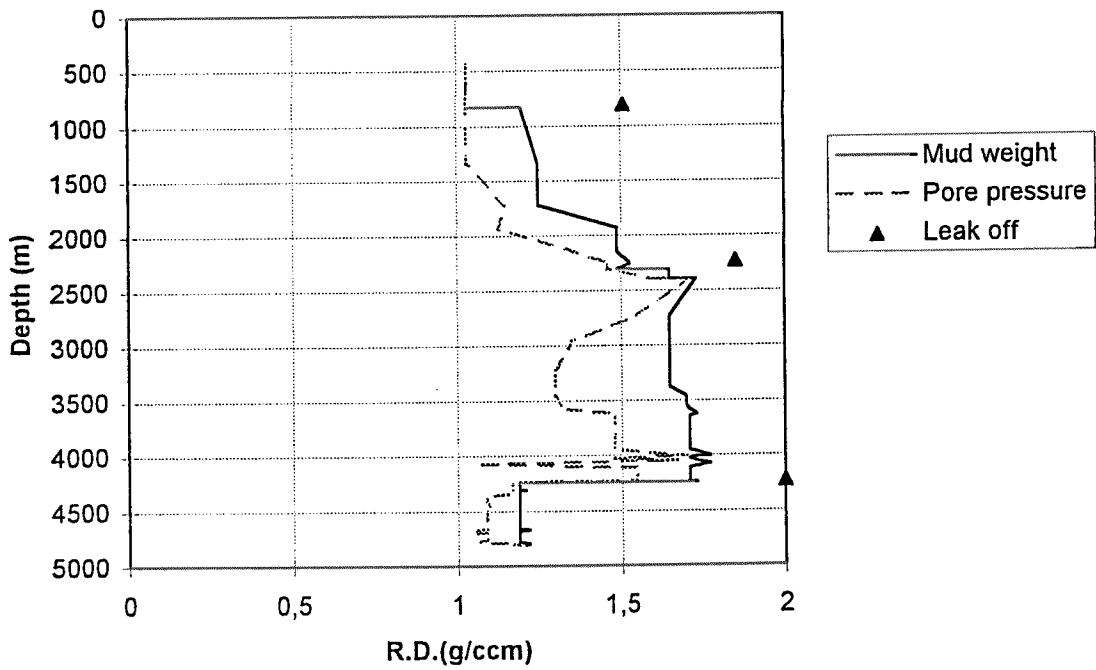
Sub operation:	Minutes:	Hours:	% of total:
CEMENT PLUG	630	10,5	3,61
CIRC/COND	780	13,0	4,47
EQUIP RECOVERY	4920	82,0	28,18
MECHANICAL PLUG	210	3,5	1,20
OTHER	6300	105,0	36,08
SQUEEZE	60	1,0	0,34
TRIP	4560	76,0	26,12
<b>Total</b>	<b>17460</b>	<b>291,0</b>	<b>100,00</b>

Total time used:  Hours

Depth vs time for well: 6506/11-2



Composite plot for well: 6506/11-2



# Well History 6506/11-02

## General:

Well 6506/11-02 was designed to drill the south-western extension of the Smorbukk Field on the Halten Terrace in order to delimit the Smorbukk structure.

The objectives of the well were:

- 1) to prove oil in the Tilje Formation of the south-western part of the Smorbukk Field.
- 2) to prove hydrocarbons in the Ile Formation and possible Garn Formation in the same part of the field.
- 3) to bring the south-western part of the Smorbukk Field to a level of maturation comparable to the eastern part, so that it can be evaluated in connection with the Smorbukk South Field development planning.

Shallow gas warnings were given for seven levels down to 910 m RKB. Maximum pore pressure was expected to approximate  $1.60 \text{ g/cm}^3$  when entering the Upper Jurassic reservoir.

## Operations:

Wildcat well 6506/11-02 was spudded 8 May 1991 by the semi-submersible rig Ross Rig and completed 27 October 1991 at a total depth of 4813 m RKB MD within the Åre Formation. A total of 15 conventional cores were cut in this well within the interval 4241-4718.5 m RKB. A total of 100 sidewall cores were attempted, and 89 were recovered. The deviation from planned time consumption (100 days in excess) reflects operational decisions during drilling. Extended logging and coring programs were approved in the course of making hole. The results lead to confirmation of extended testing as well. Significant lost time due to stuck 13 3/8" casing with subsequent side-track drilling, problems during DST 1 and P & A phase must also be taken into consideration. Several hydrocarbon bearing sands were encountered and tested. The well proved hydrocarbons, oil and gas, in the Tilje, Ile, Lange and Lysing Formations. All the objectives of the well was successfully met. The well was permanently plugged and abandoned as a oil and gas discovery.

## Testing:

Six DST tests were performed. Test no. 1A was performed in the interval 4668-4704 m RKB, yielding a maximum flow rate of 554 Sm<sup>3</sup>/d oil and 770733 Sm<sup>3</sup>/d gas through a 80" choke. Test 2 was performed in the interval 4553.2-4597.2 m RKB, yielding a maximum flow rate of 481 Sm<sup>3</sup>/d oil and 440000 Sm<sup>3</sup>/d gas through a 80 " choke. Test 3 in the interval 4486-4510 m RKB yielded no flow. Test no 4 (4371-4429 m RKB) yielded a maximum flow rate of 714 Sm<sup>3</sup>/d oil and 1028000 SM<sup>3</sup>/d gas through a 25 mm choke. Test no 5 (4005-4048 m RKB) yielded a maximum flow rate of 136 Sm<sup>3</sup>/d and 69845 Sm<sup>3</sup>/d gas through a 36" choke. Finally, DST test no 6 (3373.5-3398.5 m RKB) yielded a maximum flow rate of 40 Sm<sup>3</sup>/d oil and 6825 Sm<sup>3</sup>/d gas through a 24" choke.



# Geological Tops.

## Well: 6506/11-2.

	Depth m (RKB).
Nordland Group	320.0
Naust Fm	678.0
Kai Fm	1450.0
Hordaland Group	1912.0
Brygge Fm	1912.0
Rogaland Group	2208.0
Tare Fm	2208.0
Tang Fm	2298.0
Shetland Group	2357.5
Springar Fm.	2357.5
Nise Fm	2531.0
Kvitnos Fm	2737.0
Cromer Knoll Group	3322.5
Lysing Fm	3322.5
Lange Fm	3412.5
Lyr Fm	4134.0
Viking Group	4161.5
Spekk Fm	4161.5
Melke Fm	4165.0
Fangst Group	4228.5
Garn Fm	4228.5
Not Fm	4312.5
Ile Fm	4354.5
Båt Group	4421.0
U.Ror Fm	4421.0
Tofte Fm	4486.0
L.Ror Fm	4551.0
Tilje Fm	4553.0
Åre Fm	4705.0
T.D.	4813.0