

Well no : 6506/12-08

Operator : STATOIL

Coordinates : 65 00 59.32 N UTM coord. : 7212038 N
06 56 58.75 E 403380 E

Licence no : 94 Permit no : 579

Rig : WEST DELTA Rig type : SEMI-SUB.

Contractor : A/S SMEDVIG DRILLING CO.

Bottom hole temperature : 134 deg.C Elev. KB : 29 M

Spud. date : 88.06.04 Water depth : 296 M

Compl. date : 88.08.30 Total depth : 4335 M

Spud. class : APPRAISAL Form. at TD : L.JURASSIC

Compl. class : SUSPENDED. OIL/GAS Prod. form :

Seisloca : ST 8701 - 529 SP 858

LICENSEES

10.000000 NORSK AGIP A/S
 10.000000 ARCO NORGE A/S
 5.000000 NORSK HYDRO PRODUKSJON A.S
 15.000000 MOBIL EXPLORATION NORWAY INC.
 50.000000 DEN NORSKE STATS OLJESELSKAP A.S
 10.000000 TENNECO OIL NORWAY 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	386.0	36	386.0	.
SURF.COND.	20	553.0	26	577.0	1.43
INTERM.	13 3/8	1859.0	17 1/2	1876.0	1.83
INTERM.	9 5/8	3858.0	12 1/4	3877.0	1.75
LINER	7	4332.0	8 1/2	4335.0	.

CONVENTIONAL CORES

Core no.	Intervals cored meters	Recovery		Series
		M	%	
1	2311.0 - 2321.0	0.0	0.0	
2	3878.0 - 3905.0	27.0	100.0	MIDDLE JURASSIC
3	3905.0 - 3941.0	36.0	100.0	MIDDLE JURASSIC
4	3941.0 - 3973.0	31.2	97.5	MIDDLE JURASSIC
5	3973.0 - 3995.8	22.8	100.0	MIDDLE JURASSIC
6	4003.0 - 4036.7	33.7	100.0	LOWER JURASSIC
7	4235.0 - 4258.0	23.0	100.0	LOWER JURASSIC
8	4258.0 - 4293.0	34.0	100.0	LOWER JURASSIC

MUD PROPERTIES

Depth below KB meter	Mud weight g/cm ³	Viscosity	Mud type
390.000	1.04	120.0	WATER BASED
571.000	1.03	0.0	WATER BASED
571.000	1.20	8.0	WATER BASED
577.000	1.70	0.0	WATER BASED
981.000	1.20	45.0	WATER BASED
1579.000	1.30	14.0	WATER BASED
1873.000	1.35	17.0	WATER BASED
1941.000	1.70	8.0	WATER BASED
2311.000	1.60	28.0	WATER BASED
2530.000	1.63	26.0	WATER BASED
3865.000	1.65	24.0	WATER BASED
3877.000	1.67	21.0	WATER BASED
3983.000	1.15	27.0	WATER BASED

DRILL STEM TEST

INTERVALS AND PRESSURES

Test no.	interval meter	Choke size	Pressure (PSI)		
			WHP	BTHP	FFP
1.1	4237.000 - 4277.000 Test temperature: 147 °C	22.2	1696.9	N/A	5148.7
1.2	4205.000 - 4221.000 Test temperature: 148 °C	11.1	2233.5	N/A	5627.3
2.0	3915.000 - 3955.000 Test temperature: 137 °C	12.7	2552.6	N/A	5511.2

RECOVERY

Test no.	Oil Sm ³ /d	Gas Sm ³ /d	Oil grav. g/cm ³	Gas grav. rel.air	GOR m ³ /m ³
1.1	1100	300000	0.810	0.827	273
1.2	460	115000	0.820	0.820	250
2.0	610	180000	0.829	0.756	295

DRILL BIT CUTTINGS AND WET SAMPLES

SAMPLE TYPE	INTERVAL BELOW KB	NUMBER OF SAMPLES
Cutting	550-4335	450
Wet Samples	560-4335	300

SHALLOW GAS

Interval below KB	REMARKS

AVAILABLE LOGS

LOG TYPE	INTERVALS	1/200	1/500	Div.
DIFL BHC AC GR	554.000 - 1872.000	X	X	
DIFL BHC AC GR	1859.000 - 3874.000	X	X	
DIFL AC GR CAL	3856.000 - 4353.000	X	X	
GR	3663.000 - 3738.000	X		
GR	3707.000 - 4156.000	X		
DLL MLL GR	3100.000 - 3240.000	X	X	
CDL GR	554.000 - 1856.000	X	X	
CDL CNL GR	1859.000 - 3873.000	X	X	
CDL CNL GR	3856.000 - 4333.000	X	X	
MWD	325.000 - 4335.000	1:5000	X	
CDM	3856.000 - 4328.000	X		
CDM AP	3856.000 - 4328.000	X	X	
STRATADIP	3856.000 - 4328.000	1:40		
SPECTRALOG	3856.000 - 4333.000	X	X	
FMT	3159.000 - 3179.000	X	X	
FMT	4204.500 - 4318.500		X	
FMT press samples	3882.000 - 4258.000		X	
FMT press test	3882.000 - 4258.000		X	
AC CBL VDL GR	325.000 - 1859.000	X		
AC CBL VDL GR	3100.000 - 3856.000	X		
AC CBL VDL GR	3664.000 - 4285.000	X	X	
DRILL. DATA PRESS.	325.000 - 4335.000	1:5000		
MUD	325.000 - 4335.000		X	
VELOCITY	1000.000 - 4330.000	X	X	
(Synthetic Seismogram, 10cm/s			3 stk)	
(V.S.P., Zero Offset V.S.P, 10cm/s			5 stk)	
(Two way travel time			1 stk)	
(Acoustic Log Calibration, 10 cm/s			1 stk)	

MAIN OPERATIONS FOR WELL: 650612 08

Main operation: DRILLING

Sub operations	Minutes	Hrs	% of total
BOP ACTIVITIES	990	16,5	1,49
BOP/WELLHEAD EQ	1890	31,5	2,85
CASING	11790	196,5	17,79
CIRC/COND	4350	72,5	6,56
DRILL	30510	508,5	46,04
OTHER	360	6,0	0,54
REAM	1215	20,3	1,83
SURVEY	210	3,5	0,32
TRIP	14955	249,3	22,57
Total	66270	1104,5	100,00

Main operation: FORMATION EVAL

Sub operations	Minutes	Hrs	% of total
CIRC/COND	660	11,0	1,60
CORE	3870	64,5	9,40
DST	22020	367,0	53,46
LOG	10620	177,0	25,78
RFT/FIT	240	4,0	0,58
TRIP	3780	63,0	9,18
Total	41190	686,5	100,00

Main operation: INTERRUPTION

Sub operations	Minutes	Hrs	% of total
FISH	1650	27,5	14,14
LOST CIRC	5700	95,0	48,84
MAINTAIN/REP	3420	57,0	29,31
WELL CONTROL	900	15,0	7,71
Total	11670	194,5	100,00

Main operation: MOVING

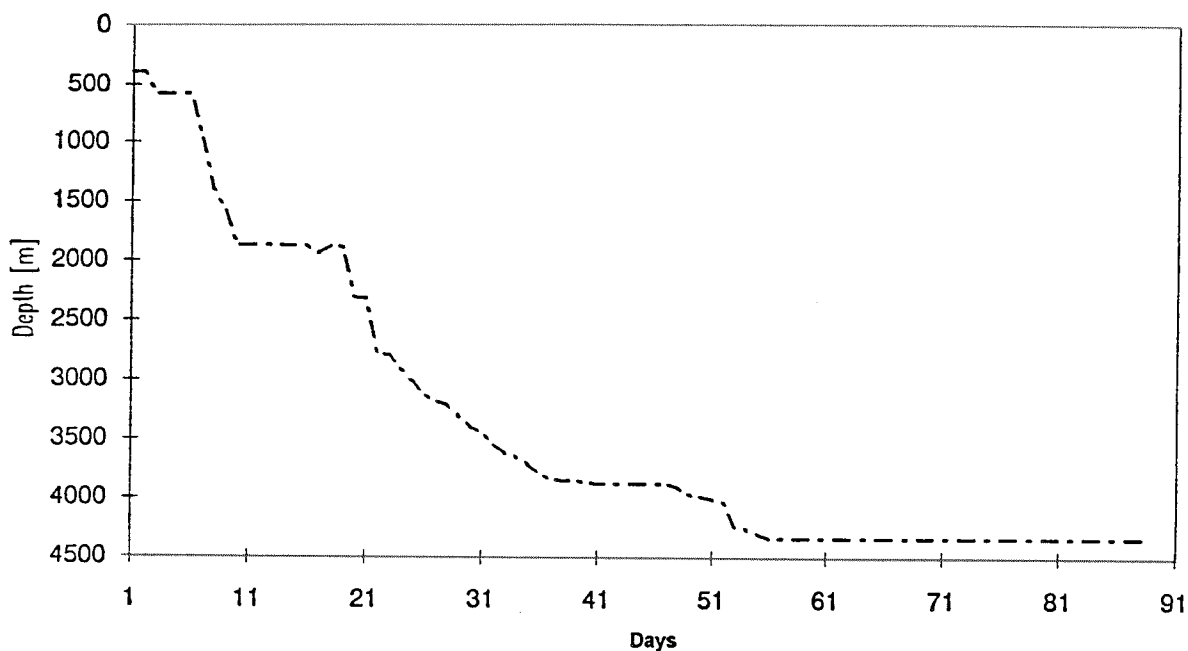
Sub operations	Minutes	Hrs	% of total
ANCHOR	4020	67,0	73,22
TRANSIT	1470	24,5	26,78
Total	5490	91,5	100,00

Main operation: PLUG & ABANDON

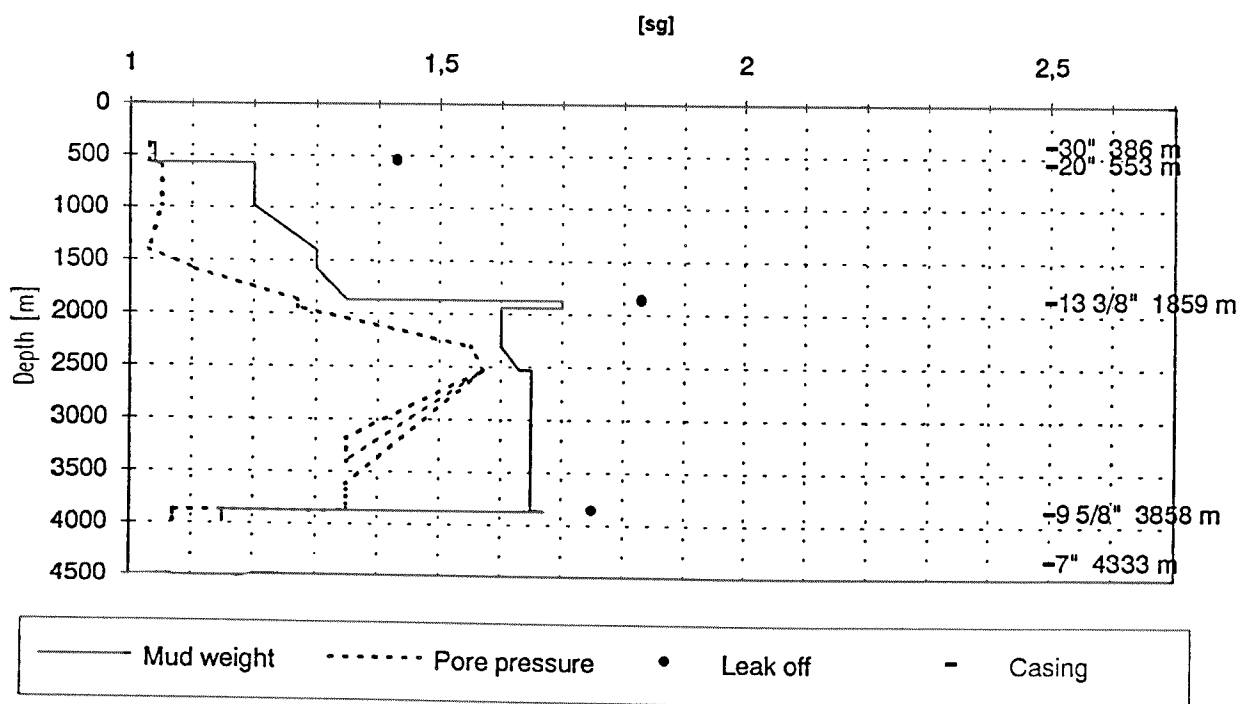
Sub operations	Minutes	Hrs	% of total
CEMENT PLUG	570	9,5	8,88
CIRC/COND	540	9,0	8,41
EQUIP RECOVERY	1410	23,5	21,96
MECHANICAL PLUG	630	10,5	9,81
TRIP	3270	54,5	50,93
Total	6420	107,0	100,00

Total time used 2184 hrs (91 days)

Depth v.s. time plot for well: 650612 08



Composite plot for well: 650612 08



Well History 6506/12-8

GENERAL:

Well 6506/12-8 was designed to prove hydrocarbons in the Smørbukk South structure lying in the southern part of the block. The main objective of this appraisal well was to establish productivity in Garn Formation downflank of well 6506/12-3, fluid properties and better understanding of diagenesis effects. In Tilje Formation the oil/water and gas/oil contacts should be established or confirmed, and in Ile Formation the gas/water contact should be established.

OPERATIONS:

Appraisal well 6506/12-8 was spudded 4 June 1988 by Smedvig semi-submersible rig West Delta and completed 30 September 1988 at a depth of 4335 m in Late Jurassic rocks. There were experienced some problems with influx of formation water below 13 3/8" casing shoe. After this problem was solved, drilling proceeded without further problems.

Due to earlier problems during drilling of 12 1/4" hole a core was cut in a claystone interval from 2311 - 2321 m. Unfortunately this was unsuccessful, the result was no recovery.

Top reservoir was encountered at 3875 m. The hole was plugged back and 9 5/8" casing was set at 3858 m.

5 cores were cut in the interval 3878 - 4038.5 m. Two cores were cut in the Tilje Formation in the interval 4235 - 4292 m.

The hole was logged and FMT nodes were taken. The logs showed good reservoir properties, especially in Garn Formation. A temporary oil/water contact was defined at 4259 m.

The well was suspended as an oil and gas discovery.

TESTING:

Two DST tests were performed in Garn and Tilje Formation. Both were planned in two intervals, where the first production comes from the lower interval and the second from the upper interval. This was succesful for DST 1, but for DST 2 the cement was not good enough, so it was produced from both intervals at the same time.

GEOLOGICAL TOPS

WELL: 6506/12-8

Depth m (RKB)

<i>Nordland Group</i>	225.0
<i>Naust Fm.</i>	225.0
<i>Kai Fm.</i>	1342.0
<i>Hordaland Group</i>	1968.0
<i>Brygge Fm.</i>	1968.0
<i>Rogaland Group</i>	2235.0
<i>Tare Fm.</i>	2235.0
<i>Tang Fm.</i>	2298.0
<i>Shetland Group</i>	2353.0
<i>Springar Fm.</i>	2353.0
<i>Nise Fm.</i>	2545.0
<i>Kvitnos Fm.</i>	2702.0
<i>Cromer Knoll Group</i>	3158.0
<i>Lysing Fm.</i>	3158.0
<i>Lange Fm.</i>	3185.0
<i>Lyr Fm.</i>	3725.0
<i>Viking Group</i>	3742.5
<i>Spekk Fm.</i>	3742.5
<i>Melke Fm.</i>	3787.0
<i>Fangst Group</i>	3875.0
<i>Garn Fm.</i>	3875.0
<i>Not Fm.</i>	3955.0
<i>Ile Fm.</i>	3992.5
<i>Båt Group</i>	4065.0
<i>Ror Fm.</i>	4065.0
<i>Tilje Fm.</i>	4186.0
<i>T.D.</i>	4335.0