

Well no : 31/ 2-15

Operator : SHELL

Coordinates	: 60 55 25.45 N 03 34 2.57 E	UTM coord.	: 6754585 N
		UTM zone 31	: 530762 E
Licence no	: 054	Permit no	: 434
Rig	: BORGNY DOLPHIN	Rig type	: SEMI-SUB.
Contractor	: DOLPHIN SERVICES A/S		
Bottom hole temperature	: 37 deg.C	Elev. KB	: 25 M
Spud date	: 84.09.10	Water depth	: 343 M
Compl. date	: 84.11.15	Total depth	: 1677 M
Spud class.	: APPRAISAL	Age at TD	: JURASSIC
Compl. class.	: P&A. OIL/GAS DISC.		
Seis. loc.	: 8007 - 154 SP. 290		

LICENSEES

5.000	CONOCO NORWAY INC.
5.000	NORSK HYDRO PRODUKSJON A.S
35.000	A/S NORSKE SHELL
50.000	DEN NORSKE STATS OLJESELSKAP A.S
5.000	SUPERIOR OIL NORGE A/S

CASING AND LEAK-OFF TESTS

Type	Casing diam.	Depth below KB	Hole diam.	Hole depth below KB	Lot mud eqv. g/cm ³
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CONDUCTOR	30	466.0	36	477.0	
SURF.COND.	20	800.5	26	810.0	1.38
INTERM.	13 3/8	1444.0	17 1/2	1460.0	1.62
INTERM.	9 5/8	1663.0	12 1/4	1677.0	

CONVENTIONAL CORES

Core no.	Intervals cored meters	Recovery		Series
		M	%	
1	1486.0 - 1493.0	5.6	80.0	UPPER JURASSIC
2	1493.0 - 1501.0	6.8	85.0	UPPER JURASSIC
3	1501.0 - 1503.0	0.9	45.0	UPPER JURASSIC
4	1503.0 - 1510.0	4.5	64.0	UPPER JURASSIC
5	1510.0 - 1516.5	6.5	99.9	UPPER JURASSIC
6	1516.5 - 1520.5	4.0	99.9	UPPER JURASSIC
7	1520.5 - 1530.0	8.4	88.0	UPPER JURASSIC
8	1530.0 - 1533.0	2.5	83.0	UPPER JURASSIC
9	1533.0 - 1541.0	7.2	90.0	UPPER JURASSIC
10	1541.0 - 1559.0	18.0	99.9	UPPER JURASSIC
11	1559.0 - 1577.0	15.4	86.0	UPPER JURASSIC
12	1577.0 - 1595.0	11.2	62.0	UPPER JURASSIC

MUD PROPERTIES

Depth below KB meter	Mud weigh g/cm ³	Plastic viscosity mPa.s	Mud type
430.0	1.03	9.0	WATER BASED
810.0	1.03	6.0	WATER BASED
1440.0	1.29	18.0	WATER BASED
1460.0	1.27	14.0	WATER BASED
1474.0	1.21	14.0	WATER BASED
1564.0	1.20		WATER BASED
1595.0	1.21	17.0	WATER BASED
1634.0	1.20		WATER BASED
1638.0	1.23	18.0	WATER BASED
1663.0	1.22	12.0	WATER BASED
1677.0	1.23	19.0	WATER BASED

DRILL STEM TEST

INTERVALS AND PRESSURES

Test no.	Interval meter	Choke size	FSIP	Pressure BTHP	FFP
1.0	1580.0 - 1572.0	44.5		2120.0	
2.0	1567.0 - 1564.0				

RECOVERY

Test no.	Oil Sm ³ /d	Gas M Sm ³ /d	Oil grav. g/cm ³	Gas grav. rel. air	GOR m ³ /m ³
1.0	477		0.890	0.700	55
2.0	NO SIGNIFICANT FLOW				

DRILL BIT CUTTINGS AND WET SAMPLES

SAMPLE TYPE	INTERVAL BELOW KB	NUMBER OF SAMPLES
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CUTTINGS		
WET SAMPLES	490 - 1676	120

SHALLOW GAS

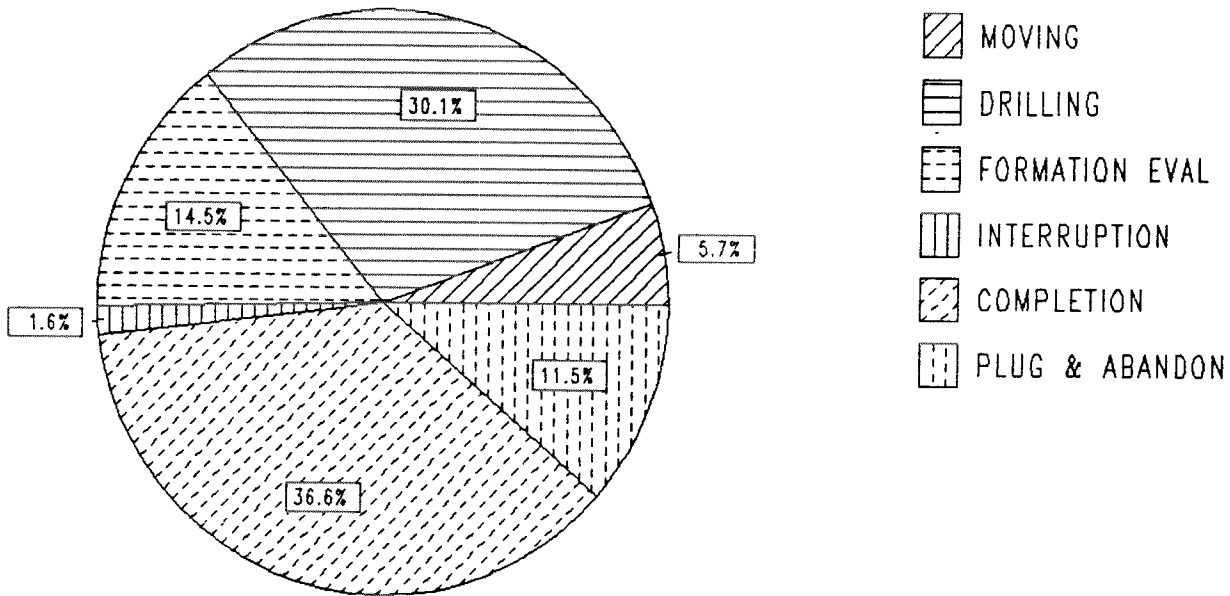
INTERVAL BELOW KB	REMARKS
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	NONE

AVAILABLE LOGS

LOG TYPE	INTERVALS	1/200	1/500
ISF BHC GR	350 - 808	X	X
ISF BHC	800 - 1437	X	X
ISF BHC	1444 - 1676	X	X
LDL CNL	466 - 808	X	X
LDL CNL	800 - 1100	X	X
LDL CNL	1100 - 1436	X	X
LDL CNL	1444 - 1676	X	X
DLL MSFL	1444 - 1671	X	X
CDM/SHDT	1444 - 1674	X	
CDM AP	1444 - 1674	X	X
NGS PLAYBACK	1444 - 1676	X	X
RFT	1497 - 1563		1:100
HP GAUGE	1497 - 1662		1:100
CBL VDL	615 - 1442	X	
CBL VDL CCL	850 - 1631	X	
MUD	466 - 1677		X
VELOCITY	368 - 1676	1:1000	X
(+ Airgun Well Velocity Survey and Calibr. log data, 1 stk)			
(+ Synthetic Seismogram, Marine, 10 cm/s, 1 stk)			
(+ Synthetic Seismogram, Marine, 20 cm/s, 1 stk)			
(+ Synthetic Seismogram, 10-20 cm/s, 4 stk)			

DAILY DRILLING REPORT SYSTEM

Main operation : 31/02-15



Total : 1680.00 HRS

Main operation	Minutes	Hours	% of total
MOVING	5790	96.50	5.7
DRILLING	30338	505.63	30.0
FORMATION EVAL	14607	243.45	14.4
INTERRUPTION	1585	26.41	1.5
COMPLETION	36930	615.50	36.6
PLUG & ABANDON	11550	192.50	11.4

MAIN OPERATION: MOVING

Sub operations	Min	% of total
TRANSIT	4080	70.47
ANCHOR	1410	24.35
POSITION	300	5.18
TOTAL	5790	100.00

MAIN OPERATION: DRILLING

Sub operations	Min	% of total
BOP/WELLHEAD EQ	6180	20.37
OTHER	390	1.29
TRIP	5951	19.62
DRILL	4560	15.03
SURVEY	180	0.59
REAM	417	1.37
CIRC/COND	2040	6.72
CASING	4860	16.02
WAIT	3360	11.08
PRESS DETECTION	60	0.20
HOLE OPEN	930	3.07
BOP ACTIVITIES	1410	4.65
TOTAL	30338	100.00

MAIN OPERATION: FORMATION EVAL

Sub operations	Min	% of total
LOG	5460	37.38
CIRC SAMPLES	450	3.08
TRIP	4827	33.05
OTHER	210	1.44
CORE	3330	22.80
CIRC/COND	330	2.26
TOTAL	14607	100.00

MAIN OPERATION: INTERRUPTION

Sub operations	Min	% of total
MAINTAIN/REP	1585	100.00
TOTAL	1585	100.00

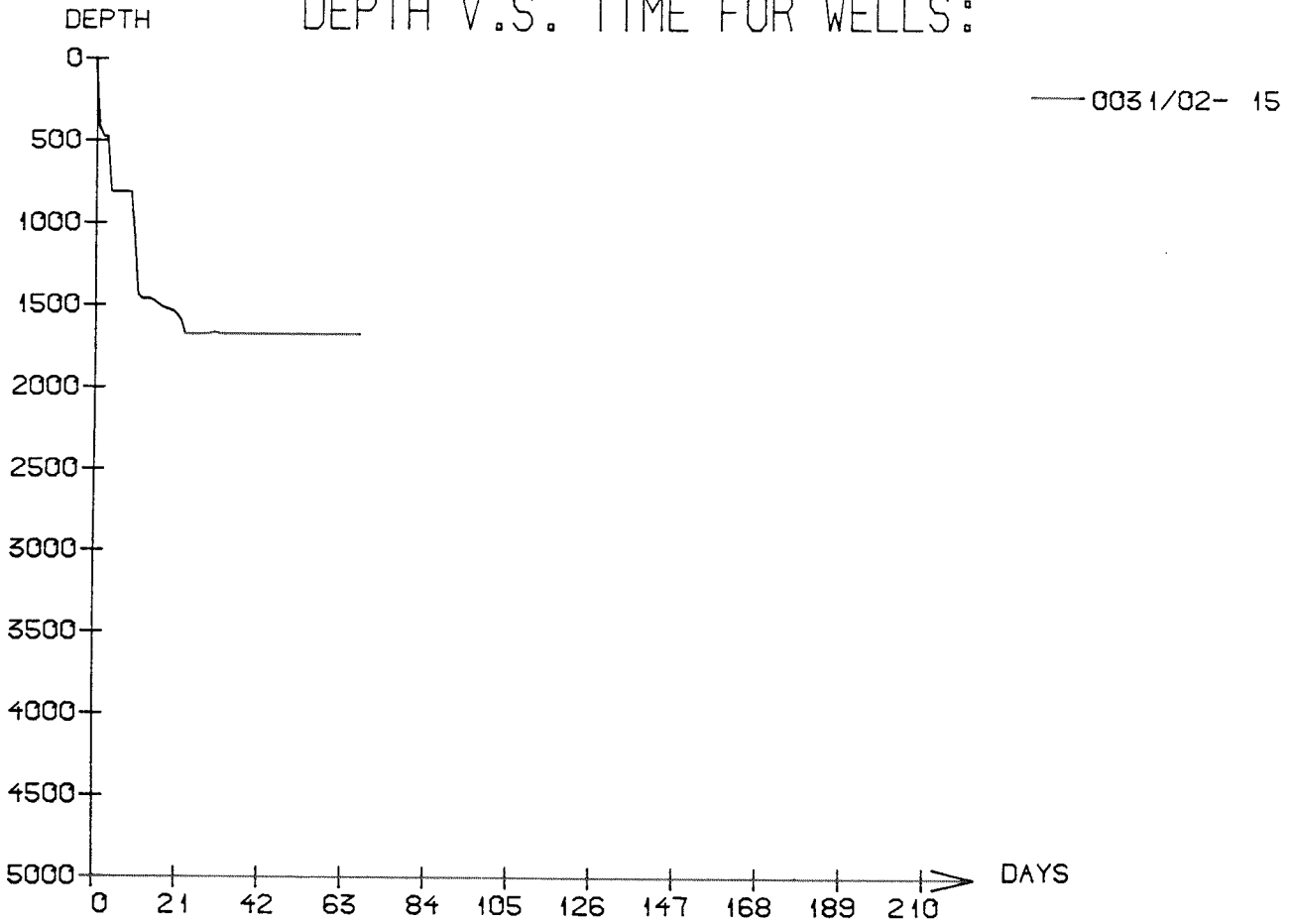
MAIN OPERATION: COMPLETION

Sub operations	Min	% of total
OTHER	6900	18.68
CIRC/COND	4875	13.20
WIRE LINE	6735	18.24
COMPL STRING	6210	16.82
WAIT	5370	14.54
PERFORATE	105	0.28
FLOW	6105	16.53
BOP/WELLHEAD EQ	630	1.71
TOTAL	36930	100.00

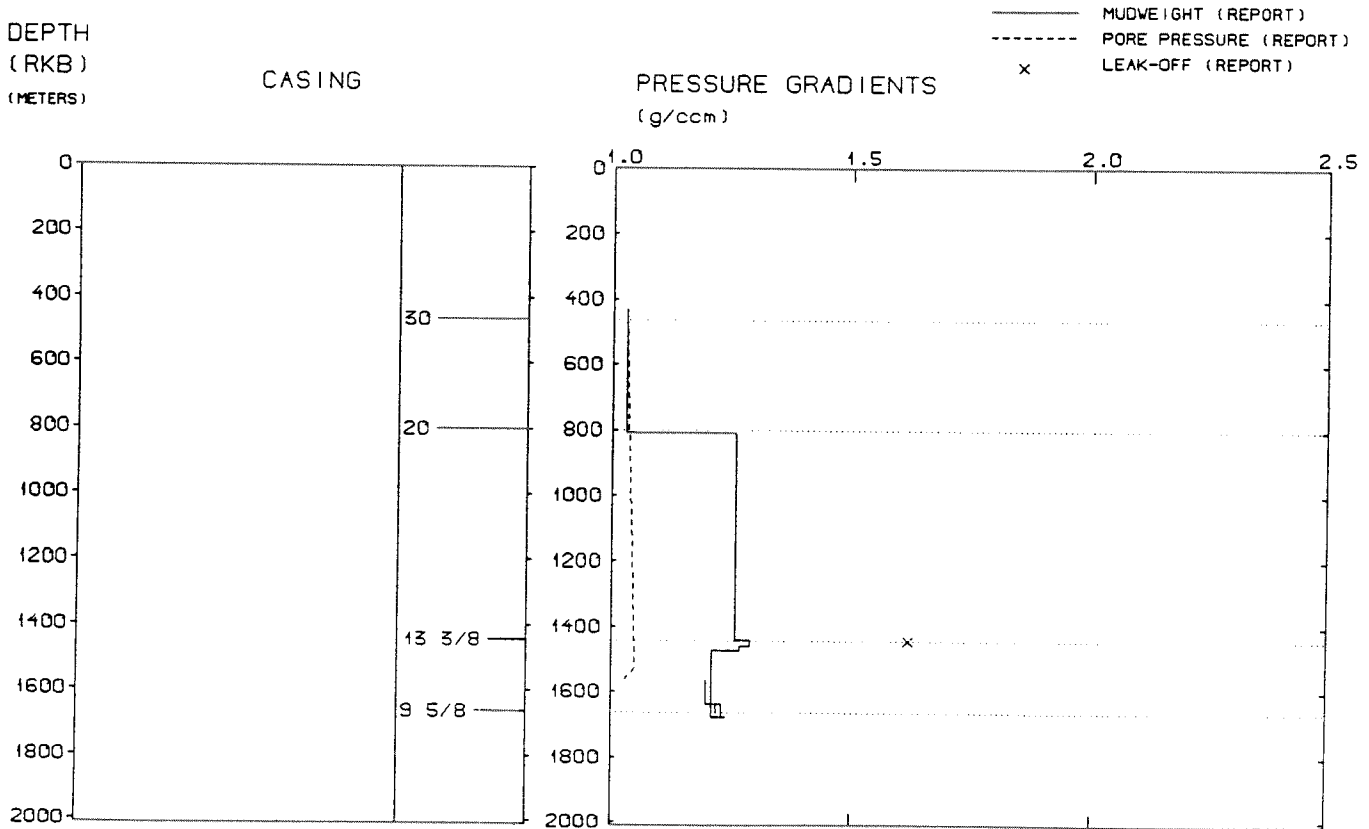
MAIN OPERATION: PLUG & ABANDON

Sub operations	Min	% of total
TRIP	2580	22.34
CIRC/COND	150	1.30
CEMENT PLUG	810	7.01
OTHER	300	2.60
MECHANICAL PLUG	330	2.86
PERFORATE	690	5.97
EQUIP RECOVERY	2010	17.40
WAIT	4620	40.00
CUT	60	0.52
TOTAL	11550	100.00

DEPTH V.S. TIME FOR WELLS:



WELL: 003102 15 PRESSURE COMPOSITE PLOT



WELL HISTORY - 31/2-15

GENERAL:

The main objectives of the appraisal well 31/2-15 were to evaluate reservoir quality and development in the northern part of the Troll West accumulation, and to establish fluid contacts in an undrilled fault compartment. Hydrocarbons were encountered and tested in the Upper Jurassic sequence.

OPERATIONS:

The well was spudded 10.09.84 by the semi-submersible rig Borgny Dolphin. Twelve cores were cut in the Upper Jurassic sequence. No major problems occurred due to drilling. The well was drilled using water based mud.

TESTING:

Two tests were performed in the Upper Jurassic sequence, the first produced oil, the second did not produce any flow.

GEOLOGICAL TOPS

WELL: 31/ 2-15

Depth m (RKB)

<i>Nordland Group</i>	368.000
<i>Hordaland Group</i>	680.000
<i>Rogaland Group</i>	1166.000
<i>Balder Fm</i>	1166.000
<i>Sele Fm</i>	1255.500
<i>Lista Fm</i>	1316.000
<i>Viking Group</i>	1482.000
<i>Sognefjord Fm</i>	1482.000
<i>Heather Fm</i>	1559.000
<i>Fensfjord Fm</i>	1636.000
TD =	1677.000