

Well no : 31/ 2-12 Operator : SHELL

Coordinates : 60 50 05.40 N UTM coord. : 6744659 N  
 03 30 48.47 E 527916 E

Licence no : 054 Permit no : 373

Rig : BORGNY DOLPHIN Rig type : SEMI-SUB.

Contractor : DOLPHIN SERVICES A/S

Bottom hole temperature : 52 deg.C Elev. KB : 25 M

Spud. date : 83.05.26 Water depth : 334 M

Compl. date : 83.09.08 Total depth : 1615 M

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

Compl. class : P&A. GAS DISCOVERY Prod. form :

Seisloca : 82 - 41081 SP 956

### LICENSEES

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5,000 CONOCO NORWAY INC.  
 5,000 NORSK HYDRO PRODUKSJON A.S  
 5,000 SUPERIOR OIL (NORGE) A/S  
 35,000 A/S NORSKE SHELL LETE-OG UTVINNINGSAVDELINGEN  
 50,000 DEN NORSKE STATS OLJESELSKAP 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	458,0	36	468,0	
SURF.COND.	20	802,0	26	810,0	1,54
INTERM.	13 3/8	1338,0	17 1/2	1348,0	1,63
INTERM.	9 5/8	1424,0	12 1/4	1427,0	
OPEN HOLE			8 1/2	1615,0	

### CONVENTIONAL CORES

Core no.	Intervals cored meters	Recovery		Series
		M	%	
1	1366.0 - 1375.0	9.0	100.0	UPPER JURASSIC
2	1375.0 - 1380.0	3.7	74.0	UPPER JURASSIC
3	1380.0 - 1389.0	7.5	83.3	UPPER JURASSIC
4	1389.0 - 1398.0	9.0	100.0	UPPER JURASSIC
5	1398.0 - 1407.0	9.0	100.0	UPPER JURASSIC
6	1407.0 - 1416.0	9.0	100.0	UPPER JURASSIC
7	1416.0 - 1424.0	8.0	100.0	UPPER JURASSIC
8	1427.0 - 1436.0	9.0	100.0	UPPER JURASSIC
9	1436.0 - 1449.0	13.0	100.0	UPPER JURASSIC
10	1449.0 - 1458.5	9.5	100.0	UPPER JURASSIC

DRILL STEM TEST									
TEST NO	DEPTH BELOW KB	CHOKE SIZE mm	RECOVERY					PRESS. (psi)	
			OIL Sm <sup>3</sup> /d	GAS M 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>	BHP	WHP
1	1428 - 1452	17.5		563.7				2046	1975
2	1385 - 1405	17.5		684.1				2237	1991

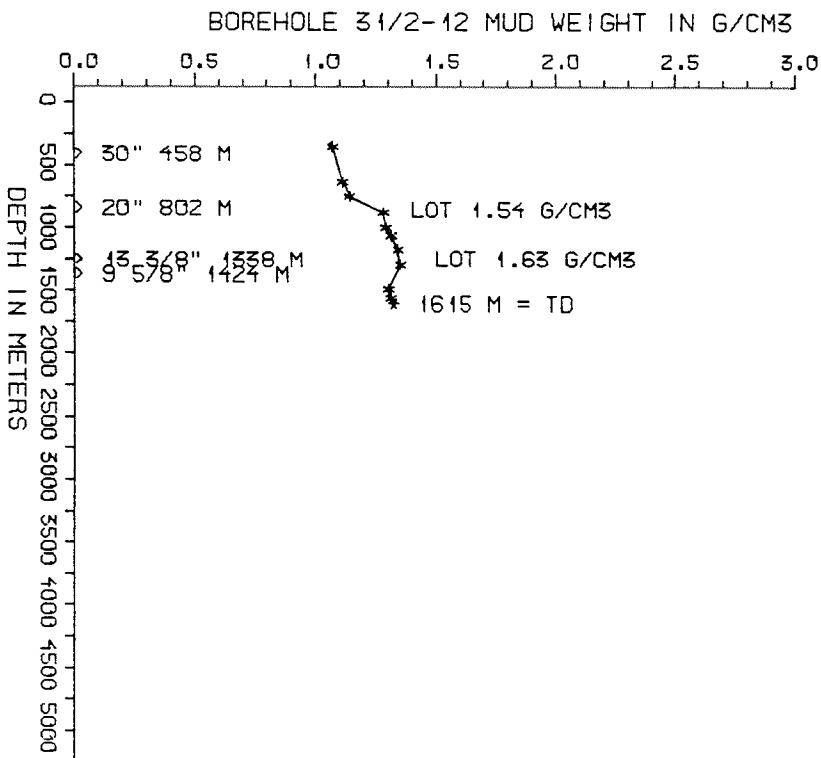
AVAILABLE LOGS			
LOG TYPE	INTERVALS	1/200	1/500
ISF BHC GR	458 - 551	X	X
ISF BHC	551 - 807	X	X
ISF BHC	801 - 1337	X	X
ISF BHC	1337 - 1423	X	X
ISF BHC	1424 - 1613	X	X
LDL CNL	458 - 552	X	X
LDL CNL	551 - 808	X	X
LDL CNL	801 - 1338	X	X
LDL CNL NGS	1337 - 1423	X	X
LDL	1424 - 1460	X	X
LDL CNL NGS	1424 - 1614	X	X
DLL MSFL	1337 - 1423	X	X
DLL MSFL	1424 - 1461	X	X
DLL MSFL	1424 - 1615	X	X
CDM	1424 - 1614	X	
CDM AP	1426 - 1613	X	X
SHDT	1424 - 1620	X	
NGS RATIO	1337 - 1423	X	
NGS RATIO	1424 - 1614	X	
NGS	1337 - 1423	X	
NGS SPECTRUM	1424 - 1614	X	
BGL	1423 - 1457	X	
BGL	1424 - 1460	X	
BGL	1424 - 1460	X	
RFT			
RFT HP	1368 - 1408	X	
RFT HP	1472 - 1600	X	
RFT HP SAMPLE			
RFT SAMPLE	1368 - 1408		
CBL	797 - 1424	X	
CBL VDL	1337 - 1423	X	
MUD	358 - 1615		X
VELOCITY (L.T.S.)	469 - 1601	1:1000	X

(Air Gun Well Velocity Survey & Cal. L.D. 1 stk)  
(Synthetic Seismogram, Marine, 10 cm/s 1 stk)  
(Synthetic Seismogr. 10 cm/s, min/zero phase 2 stk)

MUD PROPERTIES			
DEPTH BELOW KB m	WEIGHT g/cm <sup>3</sup>	FUNNEL VISC. sec	FILTRATE LOSS cm <sup>3</sup>
360	1.04	100	
500	1.04	87	
600	1.08	87	
700	1.11	87	
850	1.25	54	
900	1.26	54	
1000	1.28	54	
1050	1.30	54	
1100	1.31	54	
1200	1.32	54	
1430	1.27	62	
1500	1.28	63	

DRILL BIT CUTTINGS AND WET SAMPLES		
SAMPLE TYPE	INTERVAL BELOW KB	NUMBER OF SAMPLES
CUTTINGS		
WET SAMPLES	480 - 1615	152

SHALLOW GAS	
DEPTH INTERVAL m KB	REMARKS
	NONE



## WELL HISTORY - 31/2-12

### GENERAL;

The main objectives of the appraisal well 31/2-12 were to evaluate various techniques for the completion of gas production wells in the Troll field, to establish the reservoir quality in the central part of the Troll field gas accumulation in the neighbourhood of a possible platform location and to provide additional data point for the correlation and mapping of the depositional units.

### OPERATIONS:

The well was spudded 26.05.83 by the semi-submersible rig Borgny Dolphin. Ten cores were cut in the Lower Jurassic sequence. No major problems occurred during drilling but a kick was taken due to an unsuccessful DST. The well was drilled using waterbased mud.

### TESTING:

During a gravel pack test in open hole, in the interval 1385 - 1405 m, the well took a kick and had to be closed in. The production-string was cut and the well killed. After fishing out the production-string a successful gravel pack test was performed. After drilling to TD another gravel pack test was performed in cased hole in the interval 1428 - 1452 m.

GEOLOGICAL TOPS  
WELL 31/2-12

	Depth m (RKB)
Nordland Group	334,0
Hordaland Group	730,0
Rogaland Group	1180,5
Balder Fm	1180,5
Sele Fm	1234,0
Lista Fm	1258,0
Shetland Group	1354,0
Viking Group	1365,0
Sognefjord Fm	1365,0
Fensfjord Fm	1540,0
TD =	1615,0