

# WDSS Report

Date: 22/10/96

PB/SKR

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<b>Well no:</b>	<b>Operator:</b>
<b>2/01-09</b>	<b>BP</b>

## Well

Coordinates :	56° 51' 37.77" N 03° 05' 04.77" E	UTM coord. :	6302000.77 N 505162.3 E
License no :	19	Permit no :	676
Rig :	ROSS ISLE	Rig type :	SEMI-SUB.
Contractor :	ROSS DRILLING A.S		
Bottom hole temp:	162 °C	Elev. KB :	23 M
Spud. date :	91.04.15	Water depth :	66 M
Compl. date :	91.07.06	Total depth :	4289 M
Spud. class :	APPRAISAL	Form. at TD :	PERMIAN
Compl. class :	P&A. OIL/GAS DISC.	Prod.form. :	
Seisloca :	X-OVER 3D LINE 560 AND X-LINE 570		

## Licenseses

- 26.625000 BP PETROLEUM DEV. OF NORWAY AS
- 9.375000 CONOCO NORWAY INC.
- 5.000000 NORSKE MOECO A/S
- 4.000000 AS PELICAN
- 50.000000 DEN NORSKE STATS OLJESELSKAP A.S
- 5.000000 NORSKE AEDC 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	164.0	36	166.0	
INTERM.	20	895.0	26	897.0	1.74
INTERM.	13 3/8	2893.0	17 1/2	2896.0	2.03
INTERM.	9 5/8	3938.0	12 1/4	3940.0	2.15
LINER	7	4275.0	8 1/2	4289.0	

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## Conventional Cores

Core no.	Intervals cored meters	Recovery m	%
1	4019.0 - 4046.0	27.0	100.0
2	4046.0 - 4074.0	28.0	100.0
3	4074.0 - 4102.0	55.0	100.0
4	4102.0 - 4125.0	23.0	100.0
5	4125.0 - 4153.0	28.0	100.0

## Mud

Depth	Mud weight	Visc.	Mud type
426.1	1.57	42.0	OIL BASED
961.0	1.20	31.0	WATER BASED
1583.0	1.40	49.0	WATER BASED
3610.0	1.60	80.0	WATER BASED
3775.0	1.73	85.0	WATER BASED
3847.0	1.73	77.0	WATER BASED
3910.0	1.73	82.0	OIL BASED
3947.0	1.73	91.0	OIL BASED
3967.0	1.72	82.0	OIL BASED
4019.0	1.63	51.0	OIL BASED
4074.0	1.56	47.0	OIL BASED
4102.0	1.57	53.0	OIL BASED
4153.0	1.57	54.0	OIL BASED
4240.0	1.58	56.0	OIL BASED
4289.0	1.58	65.0	OIL BASED

## Drill Stem Test (intervals and pressures)

Test no.	Test interval meter	Choke size	Pressure (psi) WHP	BTHP	FFP
1.0	4078.0 - 4108.0	17.4	1058	3430	

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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	165	90577			549

### Drill Bit Cuttings and Wet Samples

Sample type	Interval below KB	Number of samples
WET SAMPLES	910 - 4287	300
CUTTINGS	900 - 4275	270

### Shallow Gas

Interval below KB	Remarks

### Available Logs

Log type	Intervals logged	1/200	1/500	
ARRAY SONIC	3820.0 - 4290.0			
CBL VDL CCL GR	2053.0 - 2815.0			
CBL VDL GR	2560.0 - 3934.0			
CBL VDL GR CCL	3760.0 - 4247.0			
CDM AP/SHDT OBDDIP	3951.0 - 4289.0			
CST GR	3500.0 - 4288.0			
DIL AS GR	3945.0 - 4295.0			
DIL LSS GR	80.0 - 3952.0			
LDL CNL NGS	3945.0 - 4297.0			
MUD	88.0 - 4289.0			
MWD	88.0 - 3947.0			

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NGT RATIOS	3945.0 - 4297.0			
PRESSURE EVALUATION	88.0 - 4289.0			
RFT HP GR	4049.0 - 4244.0			
RWD	88.0 - 4289.0			
WSC	500.0 - 4213.0			

**Main operations for well: 2/1-9****Main operation: DRILLING**

Sub operation:	Minutes:	Hours:	% of total:
BOP/WELLHEAD EQ	4649	77,5	6,51
CASING	8744	145,7	12,24
CIRC/COND	4875	81,3	6,83
DRILL	31185	519,8	43,67
HOLE OPEN	1005	16,8	1,41
OTHER	60	1,0	0,08
PRESS DETECTION	150	2,5	0,21
REAM	1170	19,5	1,64
SURVEY	1095	18,3	1,53
TRIP	18240	304,0	25,54
WAIT	240	4,0	0,34
<b>Total</b>	<b>71413</b>	<b>1190,2</b>	<b>100,00</b>

**Main operation: FORMATION EVAL**

Sub operation:	Minutes:	Hours:	% of total:
CIRC SAMPLES	75	1,3	0,22
CIRC/COND	2371	39,5	6,83
CORE	2749	45,8	7,92
DST	12510	208,5	36,02
LOG	8101	135,0	23,33
OTHER	1260	21,0	3,63
RFT/FIT	180	3,0	0,52
TRIP	6130	102,2	17,65
WAIT	1350	22,5	3,89
<b>Total</b>	<b>34726</b>	<b>578,8</b>	<b>100,00</b>

**Main operation: INTERRUPTION**

Sub operation:	Minutes:	Hours:	% of total:
FISH	1740	29,0	47,14
MAINTAIN/REP	1651	27,5	44,73
WAIT	300	5,0	8,13
<b>Total</b>	<b>3691</b>	<b>61,5</b>	<b>100,00</b>

**Main operation: MOVING**

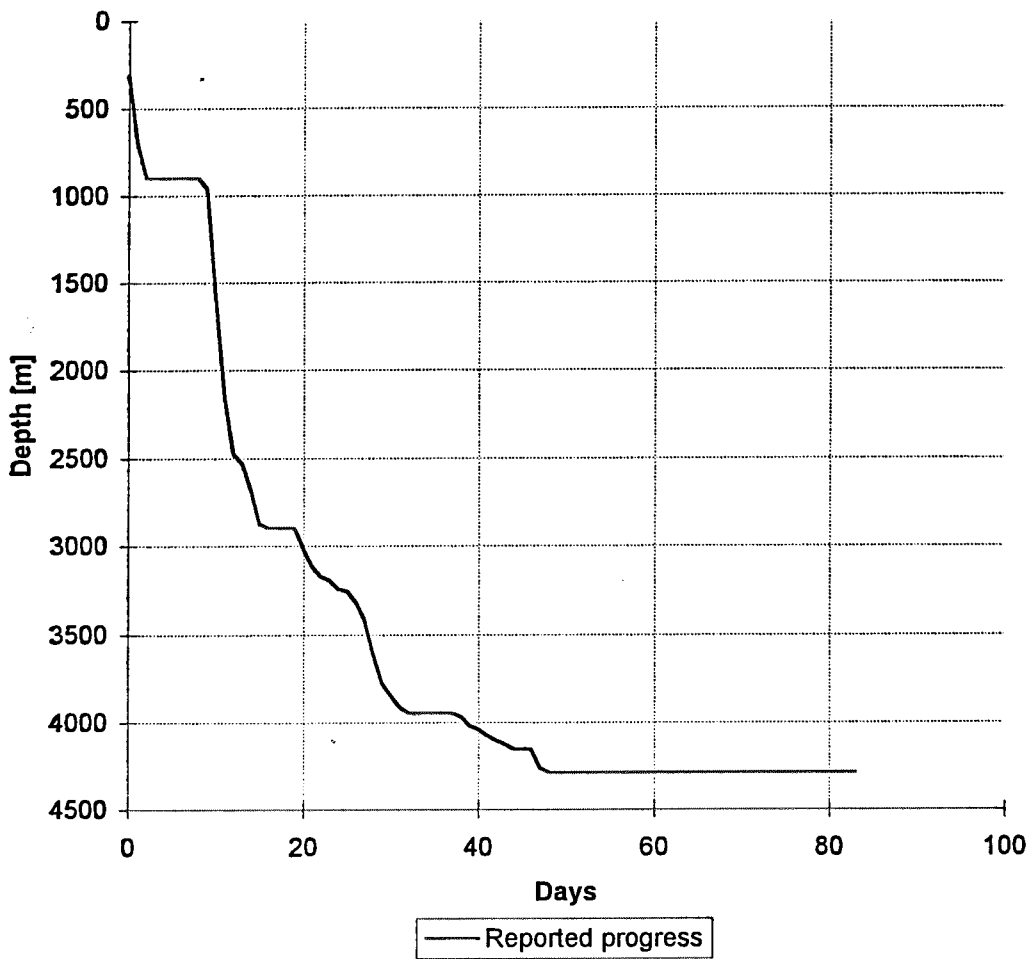
Sub operation:	Minutes:	Hours:	% of total:
ANCHOR	2970	49,5	58,75
POSITION	60	1,0	1,19
TRANSIT	2025	33,8	40,06
<b>Total</b>	<b>5055</b>	<b>84,3</b>	<b>100,00</b>

**Main operation: PLUG & ABANDON**

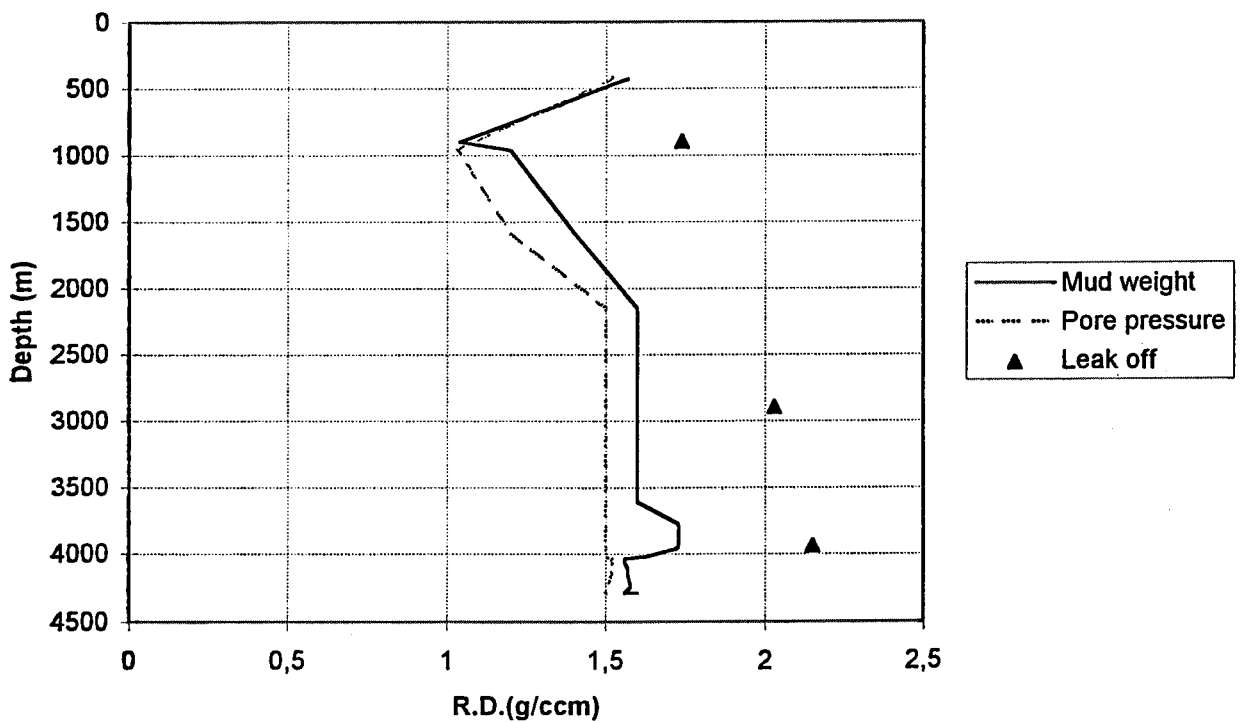
Sub operation:	Minutes:	Hours:	% of total:
CEMENT PLUG	525	8,8	6,99
CIRC/COND	1591	26,5	21,17
EQUIP RECOVERY	1679	28,0	22,34
MECHANICAL PLUG	135	2,3	1,80
OTHER	540	9,0	7,19
TRIP	3045	50,8	40,52
<b>Total</b>	<b>7515</b>	<b>125,3</b>	<b>100,00</b>

Total time used:  Hours

Depth vs time for well: 2/1-9



Composite plot for well: 2/1-9



# Well History 2/1-9.

## General:

Well 2/1-9 was dedicated to drill the Gyda South structure, a fault/dip closure, which lies in the Late Jurassic fairway on the eastern flank of the Central Graben, six km south of the Gyda Field. The Gyda South prospect comprise Gyda Formation reservoir sands trapped in a hanging wall antiform. The reservoir is sourced and vertically sealed by overlying Mandal Formation mudstones. Lateral seal is against Triassic rocks across a fault to the east.

The main objective of the well was to test the Late Jurassic Gyda sandstone target. If successful, to prove a volume of oil that was commercial as a tie-back development to the Gyda platform. Secondary reservoir potential existed in both the Middle Jurassic and in the uppermost part of the Triassic, which was also to be evaluated. Estimated TD was 4275 m TVD RKB.

## Operations:

Wildcat well 2/1-9 was spudded by the semi-submersible rig Ross Isle 15 March 1991, and completed 6 July 1991 at a depth of 4298 m RKB in rocks of Permian age. The pilot hole was drilled down to 900 m RKB in one pass. No significant problems were faced while drilling this well. A total of five cores were cut, one in the Farsund Formation and four in the Gyda Sandstone Member. Good oil shows were observed throughout the whole cored section. No shallow gas was detected in this well. A total of 60 sidewall cores were attempted, with 31 recovered. Top reservoir came in at 4048 m RKB, approximately 25 m deeper than prognosed, and base reservoir was identified at 4193 m RKB, giving a total thickness of 145 m, which is 85 m thicker than prognosed. Oil-water contact was identified at 4137 m RKB

## Testing:

One DST test was performed in this well. Due to presence of H<sub>2</sub>S, the lower part of the reservoir was not tested.

# Geological Tops.

## Well:.2/1-9

Depth m (RKB).

Nordland Group	88.5
Hordaland Group	1814.0
Vade Fm	2348.0
Undefined	2451.0
Rogaland Group	2898.0
Balder Fm	2898.0
Sele Fm	2915.0
Forties Fm	2923.0
Lista Fm	2982.0
Vidar Fm	3055.0
Lista Fm	3143.0
Våle Fm	3158.5
Shetland Group	3168.0
Ekofisk Fm	3168.0
Tor Fm	3256.0
Hod Fm	3617.0
Blodoks Fm	3765.0
Hidra Fm	3783.0
Cromer Knoll Group	3800.0
Rodby Fm	3800.0
Sola Fm	3837.5
Tuxen Fm	3851.5
Åsgard Fm	3867.0
Tyne Group	4013.5
Mandal Fm	4013.5
Farsund Fm	4033.5
Gyda Sst Mbr	4048.0
Haugesund Fm	4209.0
Vestland Group	4257.0
Bryne Fm	4257.0
Zechstein Group	4289.0
T.D.	4298.0